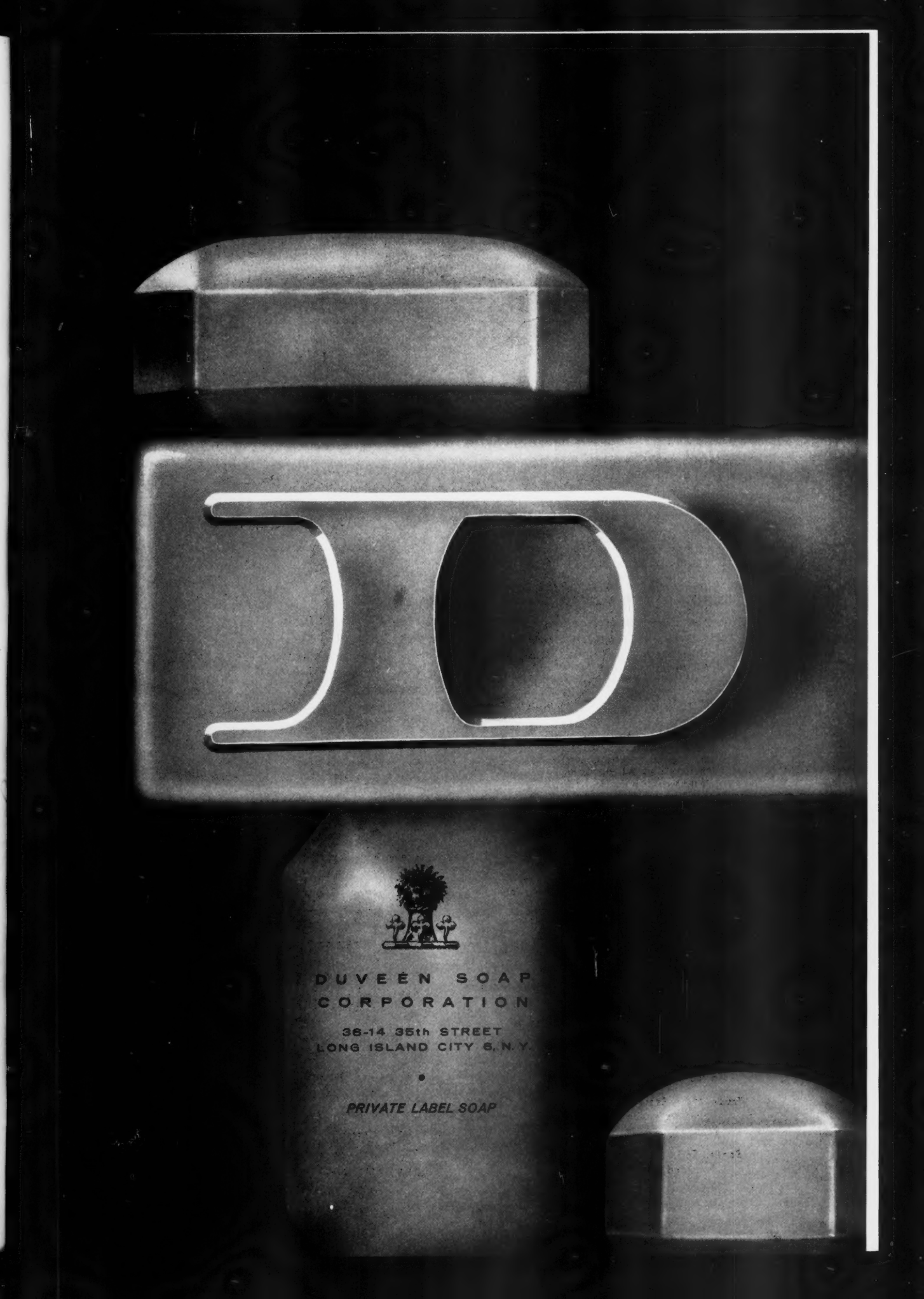
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Keeping Posted

FDA Advice

The Food and Drug Administration has some advice to give on cosmetics. This is in a newly revised consumer information booklet entitled "Read the Label."

The booklet may be obtained from the United States Government Printing Office in Washington for 20 cents a copy.

Patent Backlog

Just recently the 3,000,000th patent was issued. There is still an enormous backlog and time lag in patent processing. All this explains why there is so much research in Washington for mechanical or electronic search equipment.

Factory Modernization

According to the Department of Commerce, only about one third of American equipment is modern in the sense of being new since 1950. We suppose that this would apply pretty generally to the drug and cosmetic industry as well as to the industrial average.

This industry has not yet especially felt any effects from the vast changes that are taking place in business and trade around the world, particularly the effect of the European common market upon our own domestic industry. Certainly we cannot afford to neglect any opportunity for factory modernization, even a small step in this direction.

Emergency Service

We understand that a leading perfume company is using the Greyhound bus system for quick emergency store to door deliveries.

We have no verification of this, but if it is true, it seems that a new system of delivery may be developing for the higher priced small unit bulk or weight products of this industry.

Macy's Centennial Solicitation

Some time ago, a few manufacturing suppliers got into hot water for contributing toward the centennial celebration of R. H. Macy & Company in New York City. These donations were cited as unlawful by the FTC under the Robinson-Patman Act.

Now an FTC examiner has ruled that Macy's solicitation and acceptance of these donations are neither unfair methods of competition nor unfair practices in violation of the FTC Act.

Noting that "the solicitations could be repeated and have a cumulative effect," he ordered dismissal of the complaint without prejudice to the FTC's right to institute further proceedings should future circumstances so warrant.

This is not a final decision of the Commission. According to the examiner, Macy asked about 750 of its approximately 20,000 vendors to contribute $1,000 each. About 582 suppliers agreed to do so and by March 21, 1960, Macy's had collected approximately $540,000.

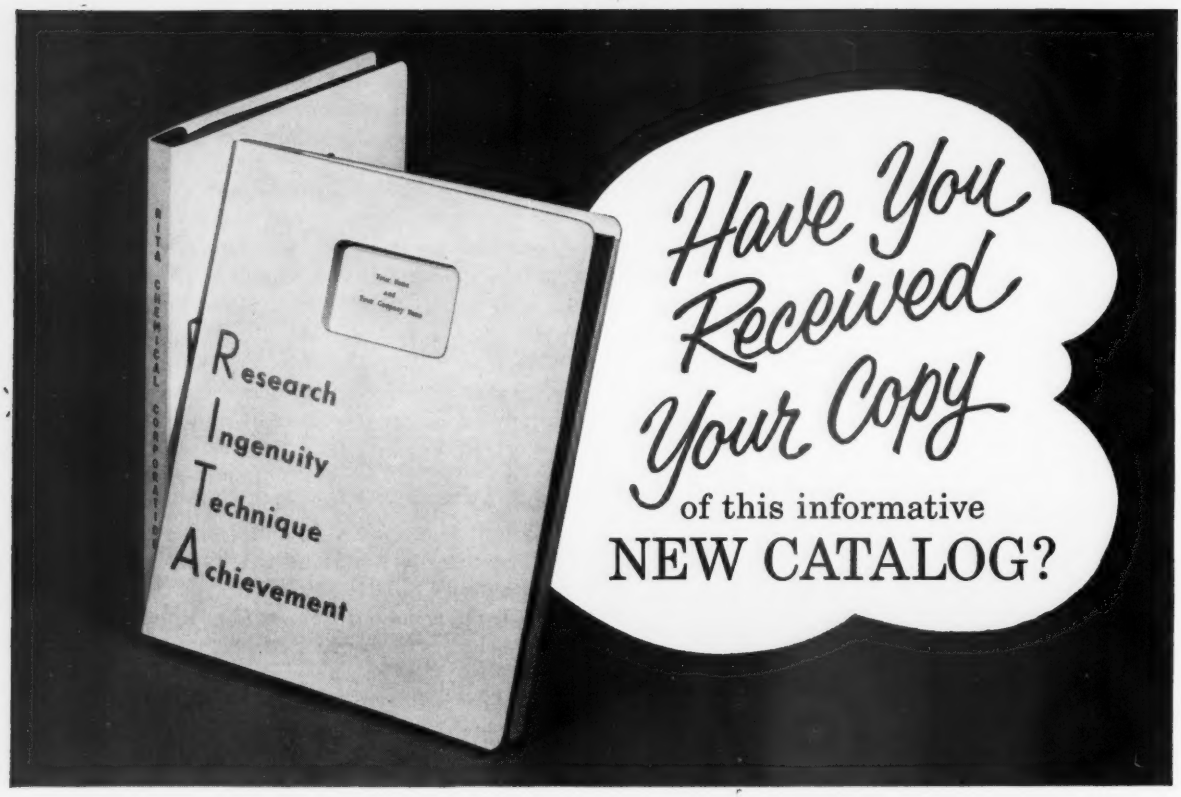
French Company

Here is a quote from France Actuelle, a semimonthly report on modern France, concerning one of its leading pharmaceutical companies. "Fifty years old this autumn and still pioneering in the field of steroid hormones, France's Roussel-Uclaf has long been one of the world's most creative and prestigious chemical-pharmaceutical enterprises."

Union Carbide to Sell Visking

Union Carbide Corporation has been ordered by the FTC to sell the Visking Corporation, a former customer which it acquired in 1956, in an exchange of stock valued prior to the merger at $91 million.

Speaking for the Commission, Chairman Dixon stated, "Mergers of this type, that is, the acquisition of customers, beget additional mergers. A resin manufacturer faced with a market over which its competitors are acquiring ever-increasing control is forced to protect its position by acquiring for itself



Each page plastic covered. Lock-latch binders for easy removal and additions.
Additional inserts will be sent as new data or new products are developed.

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control of a segment of the market and the quickest route to such control is through acquisition. At least four of Union Carbide's seven competitors have acquired film manufacturing companies. With one exception these acquisitions have taken place after the respondent's acquisition of Visking."

It seems to us that this is a clear cut statement: let the buyer beware in building a vertical structure by mergers.

P. S. We understand that the FTC will permit retention of the sausage-casing plant, a present part of Visking.

Keeping the FTC Busy

We hear rumors emanating out of Washington that the studies made by the FTC on business promotions and "payola" have produced such a wealth of exposures that the FTC staff see an impossible backlog of work. The problem of fully documenting those cases and attempting to arrive at a consent settlement or following through to a finish in the courts, seem completely beyond their resources.

Even at that, the drug industry study has not been completed.

Whether this means that the FTC has been overzealous or that the laws under which they are working, particularly the Robinson-Patman Act, are unenforceable or unrealistic or whether a lot of manufacturers have gotten somewhat out of bounds, we would not know. Probably the answer is something of all three.

At any rate, we understand that if the FTC devoted all their personnel and all their time to cleaning up this one thing, that they would have no time for any other activities.

ADA Advertising

Among the advertisements that we like to read are those of the American Dairy Association. We think that these advertisements are shining examples of logic, good taste and a highly intelligent approach to an extremely difficult problem.

The dairy industry unquestionably has a serious problem in the way the general public has been accepting the flood of publicity on calories and cholesterol. Just about every medical and scientific editor has been pretty well scaring the life out of everyone over 30 about what cholesterol can do to them. These editors, as well as those on women's magazines, plus life insurance companies and countless other sources, have all combined to make a calorie look like a rattlesnake.

In a recent page advertisement in the trade magazine for newspapers, that is "Editor and Publisher," the American Dairy Association uses a headline, "It's Time For Americans To Get Back On Our Feet" and the subtitle, "We Should Be Wearing Out Far More Shoe Leather Instead Of Shining The Seats Of Our Pants." This is a plea for physical fitness as the basis for health rather than dietary dogmas.

While the dairy people do not say it in so many words, the inference is that if we were even half as active physically as our grandfathers, we could still thoroughly enjoy our milk, cheese, butter and ice-cream.

Liana of Waikiki

We have recently received a very pleasant letter from the Hawaiian perfume company Liana of Waikiki, Inc. Quoting from this letter, "Very recently, I found a little article about our new perfume company in Drug & Cosmetic Industry, September issue.

"We do appreciate this nice article about us very much, however, a few typographical errors slipped into it which distorted our firm name and the names of two of our perfumes.

"We would appreciate it, if, together with a correction, you would publish a short business release using these facts."

In view of "a few typographical errors," it is hard to see how we can do anything but continue quoting from this letter.

"Our firm, Liana of Waikiki, Inc., is the latest perfume company established here in the Hawaiian Islands, and has been very successful in the manufacture of the most popular Hawaiian Flower Fragrances.

HORST P. BAUMGARTNER

"The president of the company is Dr. Horst P. Baumgartner, 36, a member of the Society of Cosmetic Chemists, who, after receiving his German doctorate for research in organic and physiological chemistry, was associated with Margaret Astor Cosmetics and later with J. G. Mouson & Company in Germany as the assistant production manager. His training in perfumery with several recognized capacities in this field led him many times to Grasse, France, where he became well acquainted with the methods of flower extraction. Early in 1958 he came to the United States under a contract for research in organic chemistry at the University of Maryland.

"When he came to the Hawaiian Islands, he was so intrigued by the exotic fragrances of the Hawaiian

flowers that he decided to stay and manufacture South Seas flower perfumes. After extensive experimentation in this field, Dr. Baumgartner founded Liana of Waikiki, Inc., in April, 1961. Right from the start his high quality products have found an outstanding reception on the market. Even the native critics were surprised at the true and distinct scents of his Pikake, White Ginger, Plumeria, Tahitian Gardenia, and Tuberose. The program of Liana of Waikiki, Inc. includes flower oil concentrates, extrait perfumes, solid perfumes, toilet water and colognes. Numerous inquiries from overseas lead to the plan to expand this line of South Seas flower perfumes to the mainland, and other countries in the near future."

Identical Prices

When the City Commissioner of Purchases for a major metropolis complains about identical prices for pharmaceutical products, no one should get excited. This is the sort of thing that Pavlov would have accepted as normal.

The trouble is that too many people, who are ordinary citizens with no hopes of making headlines, have the same sort of suspicion about this industry.

As a drug executive of one company stated, his company submits bids on 25,000 to 30,000 separate items a month to various government agencies. "Considering that information concerning awards is publicly available, and that we have been bidding on these same products for nearly a decade, it should not be surprising that the bids are at times close or the same."

Even more convincing to us is the fact that any two similar products, in active open competition, almost always seek approximately the same price level. Obviously, anyone who is consistently higher will soon find himself without customers and anyone who is consistently lower, either goes out of business for selling at a loss or pulls everyone down to his level on the blunt basis of survival.

Robinson-Patman Act

The "good faith" proviso of the Robinson-Patman Act, a much kicked around football, has at last been given a more reasonable and definite interpretation.

In a four to one decision, the FTC held that a company may not offer lower prices to some customers and not to all if it is trying to get new business, even if its competitors are engaging in price-cutting.

At the same time the seller may cut prices to certain customers to meet competition only when he does so to retain old customers.

Research Needed

That there are very definite limitations to the field in which the research of a private enterprise company can operate would hardly be denied. Under our system, research must produce, within a reasonable time and a reasonable allotment of money.

At a recent meeting of the chemical industry, one of its leaders stated bluntly that the industry's research was swinging away from the development of new products for which a new market must be created, and concentrating more and more in the development of new products which would fill specific consumer needs in already existing markets.

The speaker, representing one of the biggest corporations in this country, stated that over 75 per cent of his company's new products were based upon this approach.

It is a double risk and gamble in business when the expenditures for research must be directed toward a product which will then demand expenditures for market development in an untried market. It is obvious that business must set severe limitations on these ventures.

And yet, a great deal of research must be conducted if we are to continue our growth. There also must be research in fields where the economic returns appear insufficient to warrant the risk of a great deal of private capital in such a project.

An excellent example, it seems to us, was shown by a number of recent newspaper reports on death from insect stings. Judging only by the newspapers, there seems to be an increase in the United States in fatalities from such stings, particularly bees and wasps. While the medical profession does have quite a bit of knowledge on this subject, and some painful emergency treatments and a prolonged method of immunization, it is, nevertheless, true that this is a field in which little or no research has been conducted.

It would seem that a vast field of research, where private enterprise can hardly be expected to operate, should still be considered a social obligation of this industry. Certainly there are a great many similar needs, which cannot be solved directly in the research laboratories of private enterprises, but cannot be entirely ignored by private enterprise.

Suggestions for the FDA

Arthur S. Flemming, former Secretary of Health, Education and Welfare, thinks that the FDA is completely strangled by outdated laws.

In a recent magazine article he said that three steps "can and should be taken to reduce health hazards and make it increasingly difficult for these 'miracle merchants' to profit from health and beauty rackets."

Here are the three steps that Dr. Flemming would like to see.

"No cosmetic should be placed on the market until the manufacturer has convinced the FDA that it is safe.

"No therapeutic claims should be made for cosmetics until they have been cleared by the FDA.

"No mechanical devices purporting to aid in treatment of diseases or bring about weight reduction should be offered for sale until the FDA is convinced they are safe and effective."

This looks like the first steps by the FDA to tell us whether we can go to work or not.

by Marvin Miller

THE PHARMACIST FIGHTS BACK

Has the manufacturer been short-changing the pharmacist? The pharmacists think so, and are doing something about it.

Over the past decade the *laissez-faire* attitude of the retail pharmacist has caught him in the web of change. Today, he finds himself on the offensive on a variety of fronts. Loss of sales to nondrug outlets, mail order prescription houses, union pharmacies, and the impotence of Fair Trade are but a few of the many crises with which he is faced. Add to this the manufacturer-created problems he meets daily and it adds up to a formidable list of headaches.

It is not new for certain ethical and proprietary manufacturers to overlook the pharmacist's interests in their desire to increase the efficiency of their marketing operations. Nor is it new for the pharmacist to overtly complain about such policies. But there is mounting evidence of a trend for pharmacists to *act* against such policies and although only in its embryonic stages, it represents the beginning of a rebellion—and that *is* news.

It is a quiet revolution. Its origin can be found in key drug and prescription stores and it is spreading to smaller stores as well. Pharmacists are acting, or more properly reacting, against the policies of certain manufacturers. They're doing it as individuals, when filling a prescription or selling a preparation. When possible, they are concerting their efforts and calling upon organization to help fortify their stand.

It is not the purpose of this article to condemn or condone the pharmacist's activities. However, such a trend can work to the disadvantage of pharmaceutical manufacturers and an insight into this trend can be of significance to all marketers dealing with the pharmacist.

Just what practices have brought the pharmacists to arms? Asking a dozen pharmacists will probably yield as many different sources of disconsent.

Perhaps the greatest source of irritation is the policy of some manufacturers to use the pharmacist to introduce a product, and, once it becomes established, to widen its distribution to nondrug outlets. It's an old ploy and becoming harder to effectuate. Unquestionably, it is the rawest nerve of the pharmacist's reactionary reflex and he's becoming quicker to let the manufacturer know it.

Witness the experience of one ethical manufacturer who has felt only the beginning of the pharmacist's rebellion. In late 1959, the manufacturer introduced a product which found its origin at the drugstore level. New users were eager to seek professional advice concerning its use and the pharmacist quickly obliged. In fact, he was instrumental in fostering the product's initial acceptance. Fiercely competitive marketing conditions caused the manufacturer to lower the price, cut the pharmacist's margin, and go to nondrug outlets. Despite the company's mitigating efforts, many pharmacists were up in arms about it. They not only refused to recommend the company's other o-t-c lines, but actually tried to "kill" sales for these products. Years ago, pharmacists might have shrugged off the manufacturer's decision. Today, some pharmacists have actually barred the manufacturer's salesmen from their stores, and the company has yet to feel the full implications of its marketing decision.

An isolated case? Not at all. Today it's happening in lesser and even greater degrees to practically all

(Continued on page 778)

ODOR COMPENSATION

Can two odors neutralize each other? They can lose their identity, but not disappear, according to experiments described here.

BY R. W. MONCRIEFF

H. Zwaardemaker

The reduction of an irritation by a counter-irritant is a method that is well-known in medicine. The compensation of one sensation by another has been known for a very long time; it is more than 200 years since Luchtmans[1] reported counteracting tastes that gave a nearly tasteless mixture; it is well over 100 years since Valentin[2] wrote of odor counteraction. There followed Aronsohn who found that the odors of cologne water and juniper oil neutralized each other, and that so did those of petroleum and camphor.

Zwaardemaker's Work

Then came Zwaardemaker, the most famous of all the workers on odor compensation. He was a Fleming, born at Haarlem in 1857, who became a doctor of medicine in 1883 and thereafter contributed a large number of papers, mostly to physiological publications. The concept of odor compensation was not new when he came to the subject, but he brought order to it and carried out a lot of experimental work on odor "pairs" (pairs of substances that neutralize each other's odors); the papers on compensation that he published are still the Bible of those who make commercial use of his ideas. His original papers are to be found in the big libraries; most of them are in the German language, a few are in Flemish; two of the most important of them are noted in the references[3, 4] to this article. In 1959, an English translation of his famous paper "Die Compensation des Geruchsempfindungen" appeared in a London publication.[5]

The tools that Zwaardemaker used for this work were his olfactometers (Shown in Fig. 1); the single

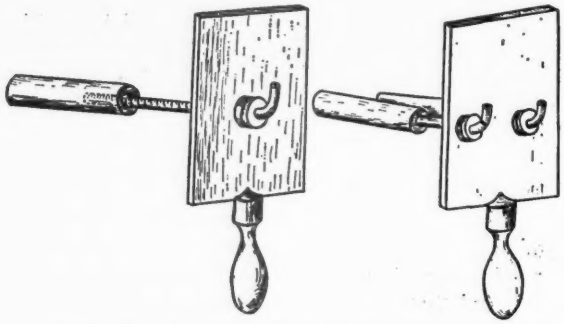


Fig. 1.—Zwaardemaker's single and double olfactometers.

instrument shown on the left came first, and the double olfactometer on the right, a few years later. The small curved tubes are inserted directly into the nostrils and as air is breathed in it is drawn through the straight tube over an odorous surface; the extent of this surface with which the inspired air makes contact can be varied by pulling the inner tube out of the outer tube.

Using the single olfactometer, Zwaardemaker established how far out the tube must be pulled to give a just detectable odor. He called this odor strength one "olfactie"; when the tube was pulled out twice as far, the odor strength (the extent of the odorized surface

over which the inspired air passed was thereby doubled) was called two olfacties and so on. Thus the concentration of an odorant in air when the odor strength was five olfacties was five times what it was when that particular odorant was only just detectable. Next, he placed two single olfactometers in series, so that the air was drawn through one and then the other, that is through both, one after the other, into one nostril. In a typical experiment, the first olfactometer contained cedarwood and the second indiarubber; Zwaardemaker found that when the strength of the cedarwood was two and three fourths olfacties and the indiarubber was 14 olfacties, then he could smell neither in the mixed air that he inspired; if the strength of the cedarwood was greater than two and three fourths olfacties, he could smell mainly cedarwood; if it was less than two and three fourths olfacties, he could smell mainly indiarubber. In Zwaardemaker's own description: "According as one or the other sensation predominated, either the one or the other odor is noticed, and when they are exactly counterbalanced, then either no precise sensation is experienced, or only a very weak impression, quite indefinite, which was noticeable only by a great effort, and corresponded with neither of the components."

Zwaardemaker thought his experiments were open to the objection that there was a possibility of chemical reaction occurring between the two odorants; the one from the first olfactometer, the other from the second, when they mixed in the second olfactometer just before being drawn into the nose. In order to avoid this objection he designed his double olfactometer (shown at the right in Fig. 1); in this the two odorants are included, one in each of the two parallel tubes, so that one odorant is drawn into one nostril and the other into the other nostril. There is no opportunity for the two odorants to mix until they reach the top of the nose near to the receptor sites. Zwaardemaker satisfied himself and wrote: "It is very simple to convince oneself qualitatively that even with the double olfactometer two sensations can neutralize each other . . . Experiments can be made with quite strong stimuli without producing a mixed smell sensation. One or the other smell will usually predominate to a greater or less degree, but if the right conditions are finally found then there will be no trace of any smell. The elimination of smell sensation is then absolute. Nevertheless there is not the slightest doubt that the two odors normally would separately have an effect on the sense organ."

Some other "pairs" of neutralizing odorants that Zwaademaker found were: Paraffin and indiarubber, wax and indiarubber, wax and Tolu balsam, skatole (an odorous constituent of feces) and coumarin, caproic acid (goat-like) and ethyl mercaptan, ethyl mercaptan and eucalyptol.

All are interesting, but some are of more importance than others from the standpoint of practical application. Thus, mercaptans are a frequent source of odor offense in lavatories and neglected kitchens, and sometimes, too, in industrial effluents; their odors are very objectionable and only a very small quantity is necessary for them to make their presence known. Tests that the author has carried out have shown that most people can distinguish pure water from water that contains one part ethyl mercaptan in 200 million parts of water—about one grain in ten tons. Zwaardemaker's finding that coumarin with its new-mown hay odor and eucalyptol with its pleasant anti-septic odor will both compensate ethyl mercaptan odor is of special interest.

(*Continued on page 747*)

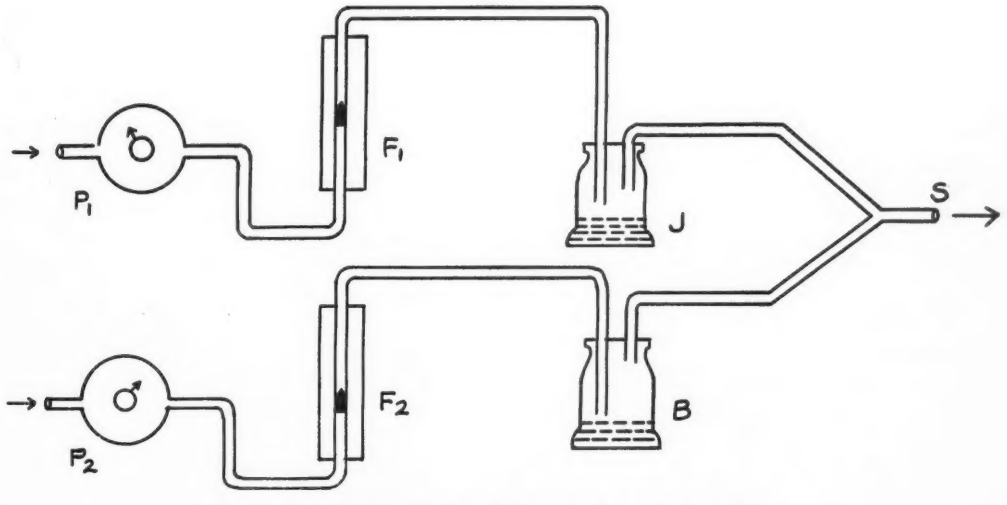


Fig. 2.—Pump P_1 blows air through flowmeter F_1 over juniper oil J. Pump P_2 blows air through flowmeter F_2 over butyric acid B. The two odorized air-streams mix at S where their odor is observed.

Cortisone, first synthesized in 1944, subsequently found to be effective in treating rheumatoid arthritis and many other diseases, particularly those characterized by inflammation.

The Wonderful World of Crystals

A PRINT EXHIBITION BY MERCK & COMPANY, INC.

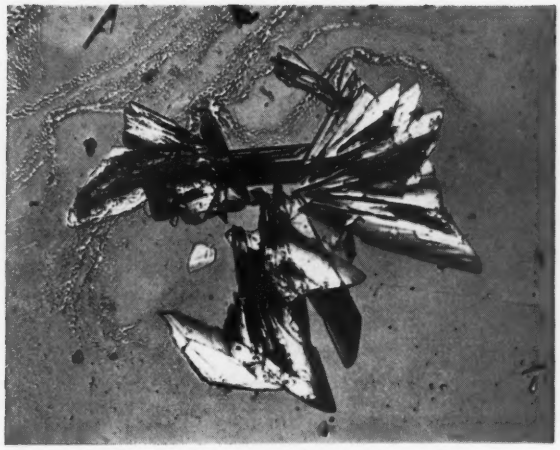
Crystallized drug and chemical compounds photographed under the microscope, recently were displayed at the Kodak Exhibit Center in Grand Central Station, New York City.

The 60 photomicrographs, in brilliant and exciting colors, were the work of photographer Jack Kath of the Merck Sharp & Dohme Research Laboratories, Division of Merck & Company, Inc. His subjects are primarily drugs and chemicals discovered or developed by Merck scientists, including cortisone and hydrocortisone, vitamin B_{12}, chlorothiazide, several sulfa drugs and many others.

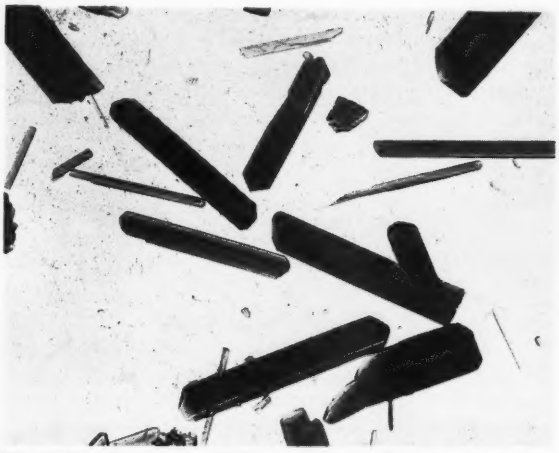
Mr. Kath aids scientists in their research by photographing compounds at enlargements up to 600 times. In the course of this work, he noted the unusual beauty of the magnified crystals. He began to experiment by changing the position of the slide in the microscope and by introducing polarized light to heighten color effects and emphasize structural details. The photomicrographs exhibited were magnified 120 times and are often similar to modern, nonobjective art.

Crystals of these compounds offer an infinite variety of size, shape and character. In fact, it is virtually impossible to duplicate the crystallization pattern of a single compound on two slides.

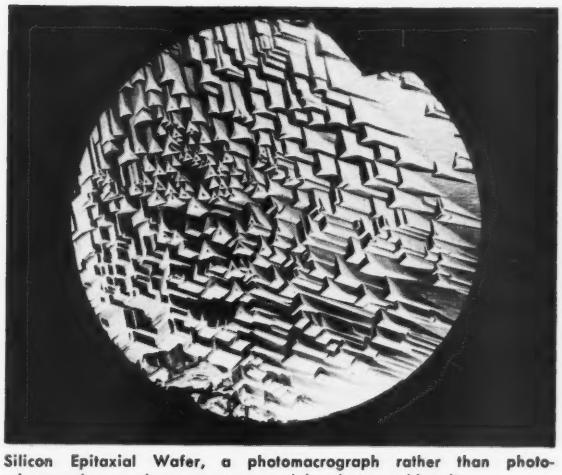
Chlorothiazide, synthesized to provide more effective treatment of edema and hypertension.



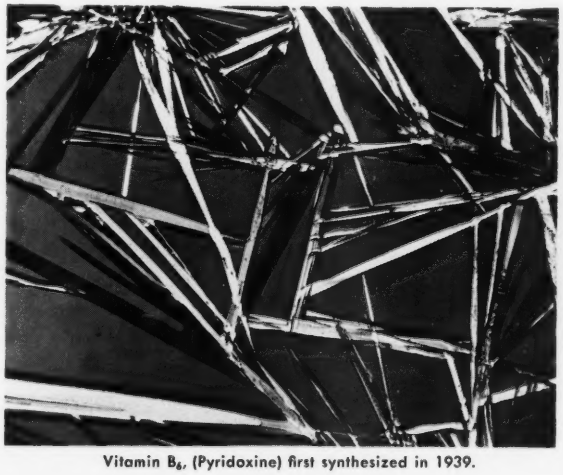
Vitamin B_1, widely used in bread and flour enrichment, first synthesized in collaboration with Dr. R. R. Williams.



Vitamin B_{12}, discovered in 1947, providing effective treatment of pernicious anemia.



Silicon Epitaxial Wafer, a photomacrograph rather than photomicrograph; no microscope was used in photographing it.



Vitamin B_6, (Pyridoxine) first synthesized in 1939.

Vitamin A.

High Dosage Vitamins

Brilliance of continuing discoveries casts a new light on vitamin market potentials . . . which are now seen to expand even while you seek estimates of their magnitude.

BY BARCLAY NEWMAN

More and more vitamins, singly or in combination, are being used clinically in higher and higher dosage to induce significant benefit in an increasing number of human disorders. These vital metabolic factors, have surprising pharmacologic effects whose variety and intensity increase as the human tissue content of the vitamin is raised to extremely high ("ultra-high") levels, far above the normal range. Thus, a vitamin becomes more than a nutrient, or essential dietary factor, as its ultra-high concentration in the tissues confers pharmacologic potency. Another discovery is that the pharmacologic effects of one vitamin in high dosage may be enhanced or otherwise altered by combination with a second vitamin. also in high dosage. Further, the effects of drugs may be modified by use of a vitamin in high dosage as an adjuvant. Even though exploration of the therapeutic potentials of this fascinating new pharmacology is still in its primal stages, clinical applications are already numerous. These include prevention or alleviation of side effects of many drugs, therapy of virus-caused warts on the soles, impaired blood flow through the brain, diabetic neuropathy, some embarrassing conditioned reflexes (such as fainting at the sight of blood, if only from roast beef), impaired absorption of iron, certain rare skin diseases as well as a not uncommon dermatosis due to a virus infection in pregnancy, some types of joint pain, angina pectoris, hypercholesteremia, some vascular diseases, dysmenorrhea and others.

All of these new uses for vitamins are not nutritional but supra-nutritional, with the therapeutic dosage a large multiple of the daily nutritional requirement for the vitamin. Although non-nutritional, the new clinical achievements of vitamins greatly enhance their general prestige. Respect of the medical profession and the public for vitamins is promoted. Vitamin market potentials also go up, as more and more vitamins in larger and larger doses are prescribed in more and more disorders, and as more and more new combinations are developed. Varied combinations are already widely used clinically, and this is an enlarging sphere of research and clinical applications, with favorable reports published at a quickening rate.

Further, the potentials, both therapeutic and commercial, are being continually augmented by discoveries of striking differences between the pharmacologic effects of different forms of the same vitamin. For example: niacin (nicotinic acid), niacin-amide (nicotinic acid amide), nicotinyl alcohol, and salts of nicotinic acid are different forms of the "anti-

pellagra" vitamin, once commonly called vitamin "PP" for *P*ellagra *P*reventive. These and a still undetermined number of chemically similar compounds have anti-pellagra efficacy; all are forms of vitamin "PP." Among these various forms, the vital key to pellagra prevention is niacinamide, a component of both coenzyme I (diphosphopyridine nucleotide, or DPN) and coenzyme II (triphosphopyridine nucleotide, TPN), vital cogs in oxidation-reduction enzyme systems essential for the metabolic use of all major nutrients. Humans readily convert niacin to the key "PP" factor, the amide. Many derivatives of niacin are likewise convertible *via* human metabolic processes into the amide. Another transformation, continuously under way in tissues, is the conversion of the amino acid, tryptophan, into niacin; this precursor of vitamin "PP" is supplied by many proteins. Adults require about 20 milligrams of niacin daily, or its equivalent in the form of its dietary precursor, tryptophan, or one of the derivatives of niacin, such as the amide. Today's authoritative view is that any

of the different forms of vitamin "PP" can be substituted for any of the other forms without detectable nutritional or physiologic deviation from normal well-being, provided that equivalent levels are used.*

Nutritionists, therefore, have been surprised to find that when the intake or dose is raised above the nutritional requirement, significant differences arise between the pharmacologic effects of niacin and those of niacinamide, or other form of vitamin "PP." If five to ten times the daily requirement of niacin is given to a group of human subjects, the vasodilating effect of niacin becomes obvious in at least some of the group: the skin, especially of the face and neck, becomes flushed and its temperature rises. A momentary fall in blood pressure in a small per cent of a large group of subjects induces a sensation of dizziness, probably because the peripheral vasodilation for a moment lowers the flow of blood through the brain. Also, in a few, "high" niacin causes itching, particularly in those with a skin disorder. An "ultra-high" dose, a gram or two, may, depending upon the individual reaction or idiosyncrasy, cause psychic symptons, such as a feeling of impending doom. Over a period of time, however, the flushing and itching response to large doses subsides, while another pharmacologic effect definitely does not: *the reduction of the level of cholesterol in the plasma*, now an established fact.

Beginning in 1955, clinical studies at the Mayo Clinic, at the Jackson Clinic and Foundation, and in many other clinics have shown niacin, in daily doses of three to six grams, to be the most uniformly effective agent yet tested in the treatment of patients having abnormally high levels of blood cholesterol. However, the use of niacin for lowering blood cholesterol must remain experimental until long-term studies assess the effect on atherosclerosis. Also, the general usefulness of this treatment is considerably limited because of side effects, including dryness of the skin in some patients and, more rarely, hyperpigmentation after prolonged therapy. Flushing and itching are usually severe only with the first few doses. Early or late in the course of treatment, there may be loss of appetite, nausea, vomiting or diarrhea, but generally these disturbances can be minimized by administrating the niacin with food. Liver function also may be disturbed in a few patients as treatment is prolonged. Mild diabetes mellitus may be simulated in many patients because of abnormal results with glucose tolerance tests, which, however, usually revert to normal after withdrawal of niacin. The uric acid level in the blood may likewise be raised.

Some surprising "side effects" of "high niacin" are decidedly beneficial. According to Parsons: "Of 11 patients who reported joint stiffness or aching prior to therapy, eight stated that these symptons were improved while taking nicotinic acid. This observation is familiar to many clinicians who have used nicotinic acid in smaller dosage (than three to six grams per day), but we do not know the explanation for its occurrence." Hope-inspiring, indeed, are the instances in which subcutaneous cholesterol deposits have been dramatically reduced in size by prolonged therapy with niacin in high dosage.

Even huge doses of nicotinic acid amide are without effect on hypercholesteremia, but many other derivatives of nicotinic acid do possess the cholesterol-lowering action, and some are under test in laboratory and clinic. Also highly effective in reducing blood cholesterol is Mer-29 or Triparanol. What happens if this drug plus the vitamin, niacin, are used together? According to Oaks, Lisan and Moyer, recent investigations have indicated that combination therapy may be useful in lowering serum cholesterol. In particular, the combined use of Mer-29, 250 mg. per day, and nicotinic acid, one gram per day, may prove more effective than either drug alone. It is possible that a synergistic effect may occur with these and other drugs used in combination, but further studies are necessary to confirm such effects.

Already prepared and under pharmacologic evaluation are the following: nicotinic acid esters of testosterone, estrone, estradiol, diethylstibestrol, hexestrol, dienestrol, cortisone, desoxycorticosterone, hydrocortisone, prednisolone, prednisone, with a view toward possible eventual clinical use.

Meanwhile, the reports of clinical benefits from supra-nutritional doses of niacin multiply. Dr. William Bickers has recently described a new treatment of dysmenorrhea, oral administration of niacin in doses of 50 milligrams. This therapy was said to be superior to any previous medication given to 106 women afflicted with unusually painful menstruation.

The 1961 edition of Beckman's *Pharmacology* mentions the following uses for niacin in high dosage, orally or intravenously: angina pectoris, mental depression, toxic confusional states, Meniere's syndrome, migraine, rheumatoid arthritis, peripheral

* Because tryptophan is converted into niacin, the human requirement for this vitamin (or its equivalent) depends upon the dietary level of the amino acid, that is, upon the amount of tryptophan supplied by the food proteins. The 1958 revision of Recommended Dietary Allowances (Food and Nutrition Board, National Research Council) expresses estimated requirements in terms of niacin-equivalents, which are based on the assumption that 60 milligrams of tryptophan may be converted into 1 milligram of niacin. This indicates a requirement of 20 niacin- equivalents for a 3,000 calorie diet, ten niacin-equivalents being derived from the tryptophan content of 60 grams of mixed proteins, and the remaining ten niacin-equivalents being obtained as the preformed vitamin (niacin, niacinamide, or other derivatives of niacin).

vascular disease. Widely prescribed by United States physicians are varied combinations of niacin plus other compounds, such as glycine (for peripheral vascular disease), pentylenetetrazol (for mild confusion, memory defects, mild depression or "inertia"), meclizine (for chronic "vascular" headaches). Massive doses of niacin and niacinamide in combination have recently been recommended for heart pain and various types of arthritis.

Niacinamide in doses of three to five grams intravenously was reported in 1960 to increase cardiac output in the dog to a remarkable degree, while decreasing cerebral vascular resistance, so that blood flow through the cerebrum is significantly promoted. Oxygen consumption by the cerebrum is at the same time increased, indicating enhancement of brain metabolism. These observations have led to the suggestion that this form of vitamin "PP" be tested clinically in conditions which would be improved by increasing brain blood flow and brain metabolism. The pharmacologic effects of niacinamide on the human brain may eventually prove both fascinating and clinically significant. The possibility of a tranquilizing effect of massive doses is suggested by tests on mice: as the dose is raised, excited mice are at first tranquilized, then, at ultra-high levels, niacinamide induces sleep. Tests on humans have not been reported as yet.

Clinical use of two different forms of the same vitamin as combination therapy has been exemplified by niacin plus niacinamide, both in high dosage. Beneficial pharmacologic effects of two different vitamins in combination at supra-nutritional levels are also being taken advantage of clinically. For example, niacin plus vitamin B_6, of which pyridoxine is one form, is a combination being investigated in the Department of Dermatology, Henry Ford Hospital, Detroit. A report of five cases of a dermatitis known as herpes gestationis, occurring in pregnant women, and responding to pyridoxine and niacin, was published by Fosnaugh, Bryan and Orders, in *Archives of Dermatology*, July 1961. The beneficial effect of pyridoxine was discovered when this vitamin was given as a measure against nausea and vomiting of pregnancy in a patient who was also afflicted with the herpes gestationis. On the assumption that the patient's nausea could be, at least in part, due to pregnancy, she was started on intravenous pyridoxine. Within 12 hours the nausea decreased, and the severe pruritus ceased; no new vesicles formed, and the erythma disappeared within 24 hours. Pyridoxine therapy was continued for one week, at which time the patient was symptom-free. After pyridoxine had been withheld for two days, the pruritus returned, and tiny vesicles began to appear. Another course of intravenous pyridoxine was administered and in two weeks her skin was entirely clear. When oral pyridoxine was substituted for the intravenous treatment, the dermatitis again worsened. At this point, nicotinic acid, 100 mg. three times daily, was added to the therapy. The eruption cleared completely over a period of two weeks. Excellent results were obtained in four additional patients with this dermatitis, by use of pyridoxine intramuscularly, intravenously, or orally, in dosage of 50 to 300 mg. daily. When the pyridoxine was given orally, nicotinic acid was added to the regimen, 100 mg. three times a day.

Other uses for supra-nutritional doses of pyridoxine are: prevention of peripheral neuritis associated with isoniazid therapy of tuberculosis; prevention of the severe vertigo, mental disturbances and convulsions caused by cycloserine; treatment of abnormal oxalate metabolism, especially in patients with abnormally high oxalate excretion and oxalate stones of the kidney.

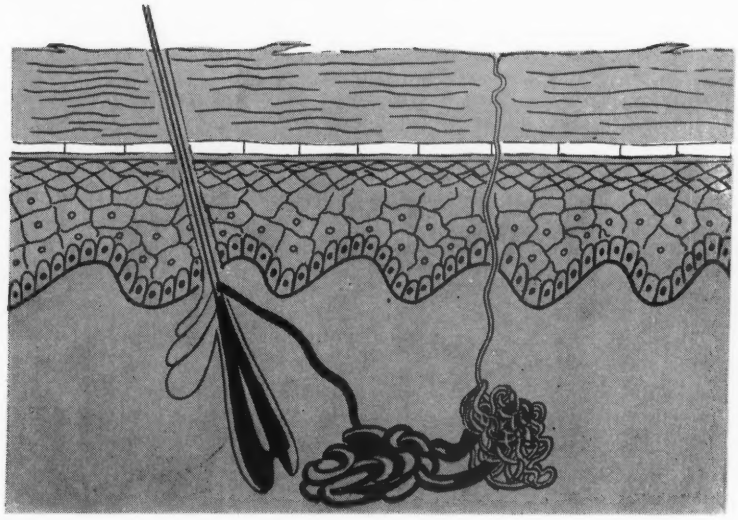
Other B vitamins are used in high doses in therapy of various types of peripheral neuropathy. Although the Food and Drug Administration has not yet recognized the validity of such claims, favorable reports on high vitamin B_{12} dosage versus diabetic neuropathy continue to appear. However, the pharmacologic effects of vitamin B_{12} at ultra-high dosage levels, grams not just milligrams per day, remain uninvestigated, but should be fascinating and might be clinically valuable.

Clinical uses for other vitamins continue to multiply. Vitamins A and D in combination with various drugs are widely prescribed for topical application in a diversity of dermatoses. Ascorbic acid in high dosage promotes absorption of iron and counters certain side effects of some drugs.

For restoration of normal peristalsis postoperatively, especially after major abdominal surgery, and to prevent and relieve postoperative retention of flatus and feces, even paralytic ileus, pantothenyl alcohol and other derivatives of pantothenic acid have recently gained popularity among surgeons. Patients treated postoperatively with dextro pantothenyl alcohol were discharged from the hospital an average of two days earlier than were those in the control group. This vitamin would seem to be a safe and effective agent of value in the management of postoperative ileus and distention.

These and many other observations in laboratory and clinic are thought-stimulating indeed. To some, the varied effects of vitamin A in prodigious dosage, with significant differences in pharmacologic effects being demonstrated among different forms of the self-same vitamin, might seem most exciting. A localized ultra-high concentration of vitamin A palmitate has been proved decidedly effective against plantar warts, or warts on the soles. In fact, the results of injecting as much as 50,000 units of the vitamin into these warts, on two to five occasions, at weekly intervals, have been so favorable that some clinicians regard this as the preferred treatment. A wart is a

(*Continued on page 804*)



HISTOCHEMICAL ASPECTS OF HUMAN HAIR

BY GAVERN T. WALKER

The histochemistry of normal skin has been very adequately summarised by Professor William Montagna in his book, *The Structure and Function of Skin*,[1] but the histochemistry of the hair follicle has not received so wide an attention. As Braun-Falko has stated, "The aim of histochemistry is to demonstrate certain compounds in cells and tissues and to arrive at conclusions about functional phenomena."[2] Certainly, the hair follicle is very rich in many different substances, including carbohydrates, lipids, amino acids, proteins, nucleic acids, and the like, and it is certain that histochemical procedures have thrown much light on the complex process of hair growth.

One of the earliest workers to investigate the presence of lipids in the hair folicle, by histochemical means, was Nicolau,[3] 50 years ago. Nicolau showed that the cells of hair follicles contain only trace amounts of sudanophilic lipids. It is believed that the outer root sheath contains phosphatides, and, also, cholesterol, while the inner root sheath may contain cholesterol, glycerol esters, fatty acid soaps, and glycerol. The keratinized cortex and the medulla of hairs seem to be almost free of lipids, and the papilla cells contain only trace quantities of lipids. Using Baker's acid hematein procedure, it has been shown that the inner root sheath and the matrix cells are abundant in phospholipid, and that the amount of these substances in the actual hair root decreases as keratinization begins. It now appears fairly certain that these phospholipids play a very important role in the formation of the keratin of hairs. Montagna has demonstrated that, in the resting hair follicle, most of the cells of the epithelial sac contain sudanophilic granules, although the hair germ and papilla cells seem to contain none of these granules.

Much work has been done on demonstrating the presence of amino acids in hair. Giroud,[4] and later Stoves,[5] showed that the medulla of the hair contains more tyrosine than does any other part of the hair follicle. The inner root sheath contains much arginine. The keratogenous zone contains great amounts of free amino acids, as might be expected, since protein synthesis is active here, while the fully formed hair seems to be free of amino acids.

There remains much to be done on the histochemical means of showing up amino acids in hair. Many of the standard methods of demonstrating simple proteins in tissues do not work successfully when applied to the hair follicle. For example, the Millon reaction and the Danielli tetrazonium reaction for tyrosine do not give convincing results when applied to the hair follicle, although one would expect that tyrosine would be present therein.

The role of thiol groups in the production of keratin is well-established. Histochemists have long been studying the distribution of such groups in the hair follicle. Kaye,[6] for example, reported that the hair

(Continued on page 746)

Tuvoche's Lily of the Valley Purser, perfume in a combination glass and metal container, and Evyan's Great Lady Flagonet, perfume in a cut glass bottle, are designed to be used at home and away from home.

Packaging For the Purse

As an added convenience to the consumer, many cosmetics are now being packaged in purse-size containers.

Because of the introduction and successful promotion of purse-sizes, cosmetics and fragrances once kept on the dressing table and used only on special occasions have been taken out of the boudoir and put to daily use. Working girls, mothers, grandmothers and teenagers are using more cosmetics and fragrances and using them more frequently.

Aerosol packaging has contributed substantially to this trend. Products that were once messy and inconvenient to carry in a purse are now carried with confidence in aerosol dispensers.

Compacts, purse flacons and eye product dispensers, designed as costume jewelry, to complement

Breck's Hair Set Mist, Revlon's Living Curl, and Charmour Products' Touch and Set, hair laquers packaged in purse-size aerosol dispensers by the Peerless Tube Company, are especially convenient for the woman who tries to be well-groomed at all times.

Perfumes that have been taken out of the boudoir, left to right: Moroccan Rose Perfume Metered Mist, by Tuvache; Ma Griffe, by Carvan, in a lightweight, golden container; Lanvin's Crescendo Perfume Mist in a gold and ivory case; Trapeze Spray Perfume, by Corday, in an engraved silver case; and Chanel No. 5 Spray Perfume in a black and gold case with the Chanel monogram.

other purse accessories, are now used in public. Small sizes enable the consumer to try more brands and to discover for herself which color or scent she likes best, and many products, such as purse-sized hair lacquers, are especially convenient for the woman-on-the-go.

Why, then, have sales of purse-sized items not grown by leaps and bounds? Why isn't the purse-size a major sales item?

Mainly, because it is as expensive to package small quantities in aerosol containers as it is larger amounts. Savings are only on the quantity of the product packaged. Component parts cost about the same whether they are put into large, economy sizes, or purse-sizes. This fact is reflected in the comparatively small difference in price between large and small sizes. Furthermore, the woman who travels, or is active socially, uses basic sizes to prepare for her day or evening out. She only uses purse-sizes for touch-ups.

In view of this, sales of small containers will never equal sales of standard sizes, although the purse-size does fill a need. Purse-sizes encourage the average woman to become a frequent user, to know more about good-grooming, and to use her cosmetics and fragrances daily, at home and away from home. J.T.

A woman's own fragrances can be conveniently carried in these purse-size dispensers. Left to right: The Week-End, a gold-finish atomizer designed by Marcel Frank; Rollarama, a refillable roll-on dispenser with accompanying funnel, designed by Lyric Industries.

CARBOPOL COSMETICS

BY DONALD L. SECARD
B. F. GOODRICH CHEMICAL COMPANY

Carbopol is a carboxy vinyl polymer of extremely high molecular weight, available as three types: Carbopol 934, Carbopol 941, and Carbopol 940. All of these are fluffy, white powders which dissolve in water and other polar solvents and form highly viscous mucilages when neutralized by alkalies or amines. The 934 type gives the greatest degree of thickening, 941 is least sensitive to the addition of salts, while 940 gives clear and transparent gels with alcohol and water.

Carbopols have the following specific properties which make them valuable in cosmetic formulation:

1. They are highly efficient thickeners in inert systems, surpassing all other natural or synthetic thickeners;

2. Products have extreme shelf stability;
3. Carbopols are free from metals and may be formulated without metals, so that possible instability caused by metallic ions can be avoided;
4. Carbopol mucilages may be repeatedly frozen and thawed without affecting viscosity or clarity of the system;
5. Shelf stability of Carbopol products is unaffected by *p*H variation from 5.0 to 11.0;
6. The resins will not support mold or fungus growth;
7. Clinical studies and consumer use of Carbopol have shown the product to be physiologically inert.

The following formulas illustrate the use of Carbopols in various types of cosmetics, and can be modified for individual requirements.

Hand Cream

The following formulation makes an appealing hand cream with excellent whiteness, rub-in and shelf stability:

		By weight
A	Glycerine	120
	Tegosept	1.5
	Triethanolamine	1.7
	Water	687
	Carbopol 934	2
	Color	q.s
B	Cetyl alcohol	100
	Lanolin	60
	Mineral oil	20
	Ethomeen C-25	5

Procedure: Carefully disperse the Carbopol 934 in the water, glycerine and Tegosept mixture, and add the triethanolamine. Heat A and B to 75°C. and add B to A with vigorous mixing. When the blend has been mixed to uniformity, cool it quickly to 30°C. Add the desired perfume at 50°C.

A cream prepared as above had a Brookfield, 20 rpm viscosity at 33,000 cps, and a *p*H of 6.9. Carbopol 934 can also form and stabilize such emulsions at lower *p*H values. Product stability is constant across a broad *p*H range.

This formulation demonstrates the utility of Carbopol 934 as both thickener and emulsifier. Homogenization may refine the emulsion but was not necessary to prepare a smooth, stable cream.

Potassium hydroxide can be substituted for the triethanolamine, but if sodium hydroxide is used,

the hand feel of the cream is not as pleasant. The relative amounts of Ethomeen C-25 and triethanolamine can also be varied, but the amount of Ethomeen C-25 should not be less than two parts to fully realize the emulsifying activity of the Carbopol 934. Increasing the amount of Carbopol 934-amine results in a heavier cream.

Hand Lotion I

Hand lotion appeal and stability is enhanced by very low concentrations of Carbopol 934. The following formulation employs only 0.1 per cent Carbopol 934 for stability and body:

		By weight
A	Water	862
	70% Sorbitol	41
	Ethanol (SD 40)	14
	Triethanolamine	10
	Carbopol 934	1
	Tegosept	1
	Color	q.s.
B	Lanolin	17
	Cetyl alcohol	3
	Stearic acid	51

Procedure: Form A by completely dispersing the Carbopol 934 in the blend of water, Sorbitol, glycerine, color and preservative. When a smooth, lump-free dispersion is obtained, add the triethanolamine.

Heat both A and B to 75°C. and add B to A with vigorous mixing. When the mix is uniformly blended, cool it rapidly to 30°C., adding perfume at 50°C.

A lotion prepared as above had a 4000 cps viscosity (Brookfield, 20 rpm) and a *p*H of 7.6. Its slightly yellow color was easily covered with small amounts of color.

Hand Lotion II

To avoid the difficulty sometimes experienced in stearic acid emulsion systems, use Carbopol 934 for emulsifier, thickener and stabilizer:

		By weight
A	Water	835
	Propylene glycol	83
	Tegosept	1
	Carbopol 934	1
	Triethanolamine	5
	Color	q.s.
	Perfume	q.s.
B	Cetyl alcohol	50
	Isopropyl myristate	25
	Ethomeen C-25	1

Procedure: Completely disperse the Carbopol 934 in the blend of water, glycol, Butyl Parasept and color. Then add the triethanolamine to complete formation of A. Form B by melting the ingredients together.

Heat A and B to 75°C. and add B to A with vigorous mixing. After this has been blended to uniformity, cool it rapidly to 30°C. Add perfume at 50°C. The emulsion is ready for packaging or may be refined by homogenizing.

This formulation can be readily prepared using only low shear mixing. The product is smooth, creamy and is of interest to those consumers desiring a somewhat oily after-feel. It has a *p*H of seven and a viscosity of 10,000 (Brookfield, 20 rpm) cps. Its viscosity can most easily be reduced by lowering the cetyl alcohol content to 30 or 40 parts. This necessitates adjustment of the isopropyl myristate level, of course.

Hand Lotion III

A lotion with a better balance of properties, utilizing Carbopol 934 as the primary emulsifier is:

		By weight
A	Water	1900
	Propylene glycol	60
	Carbopol 934	4
	Triethanolamine	4
	Tegosept	1
	Perfume and color	q.s.
B	Lanolin	40
	Cetyl alcohol	40
	Ethomeen C-25	10

Procedure: Form A by carefully dispersing the Carbopol 934 in the water, glycol, color and preservative mixture. Then add the triethanolamine. Melt the lanolin, cetyl alcohol and Ethomeen C-25 together to form B. Heat A and B to 75°C and add B to A with vigorous mixing. When the blend is uniformly mixed, cool it rapidly to 30°C. Add perfume at 50°C.

A lotion prepared from this formulation, with only low shear mixing, had a final *p*H of 6.2 and a viscosity (Brookfield, 20 rpm) of 6000 cps. Its rub-in was excellent and had a very pleasant after-feel with no trace of oiliness or stickiness.

The lanolin-cetyl alcohol ratio is fairly critical. A

1:1 ratio gave the best balance of properties from the consumer standpoint. Increasing the lanolin level gives an oily after-feel and increasing the cetyl alcohol level gives a waxy after-feel.

Cleansing Cream I

Cleansing creams can benefit from the use of small quantities of Carbopol resins. The following formulation was prepared without homogenization and still gave a very white, smooth, effective product:

		By weight
A	Beeswax	80
	Light mineral oil	490
	Paraffin	70
	Cetyl alcohol	10
	Ethomeen C-25	10
B	Water	334
	Borax	4
	Carbopol 934	2
	Color and perfume	q.s.

Procedure: Prepare B by completely dispersing the Carbopol 934 in the water and then blending in the borax. Heat both A and B to 75°C. and add A to B with vigorous agitation. Once the mix has been blended to uniformity, cool it rapidly to 30°C. Perfume as desired when the blend reaches 50°C.

A cleansing cream prepared as above had a *p*H of 8.1 and a viscosity of about 40,000 cps, (Brookfield, 20 rpm). An exact viscosity determination was difficult because of the thixotropic character of the system.

The smoothness of the cream, even without homogenization, indicates that Carbopol 934 affects the particle formation of the waxy components upon cooling. The resultant cream was free from graininess and graininess did not develop on aging.

Cleansing Cream II

The time-honored borax-beeswax emulsifier combination can also be entirely eliminated by substituting a small amount of Carbopol 934 as outlined below:

		By weight
A	Light mineral oil	25
	Lanolin	5
	Petrolatum (U.S.P.)	5
	Ethomeen C-25	1
B	Water	100
	Carbopol 934	1
	Triethanolamine	1
	Perfume	q.s.

Procedure: Form B by dispersing the Carbopol 934 in the water heated to 65°C. Combine the ingredients in A and heat this blend to 65°C. Add A to B with vigorous mixing and then add the triethanolamine. As the oil phase is added, the emulsion will invert to a W/O type and then re-invert to O/W when the TEA is added. Cool the mix and add perfume.

This technique is very useful in forming a fine white cleansing cream with excellent cleaning power and pleasant after-feel. A batch prepared in this fashion had a *p*H of 5.3 and a Brookfield, 20 rpm, viscosity of 60,000 cps.

Hair Creams

Hair dressings that keep the hair in place without undue oiliness or stickiness are easily formulated with Carbopol 934. The oily components of the following formulations can be varied in type and concentration, but these recipes are good starting points:

		By weight	
		I	II
A	Mineral oil	50	128
	Lanolin	10	16
	Cetyl alcohol	20	—
B	Water	697	726
	Carbopol 934	5	5
	Propylene glycol	212	117
	Triethanolamine	4	5
	Ethomeen C-25	3	3
	Tegosept	1	1
	Perfume	q.s.	q.s.

Procedure: To form B, carefully disperse the Carbopol 934 in the blend of water, propylene glycol and Propyl Parasept. Then stir in the triethanolamine and Ethomeen C-25. Heat both A and B to 75°C and add A to B with vigorous agitation. Stir the mix to uniformity, then cool it rapidly to 30°C. Perfume should be added at 50°C.

Formulation I is a smooth cream with a final *p*H of 6.5 and a viscosity of 41,000 cps (Brookfield, 20 rpm). Its consistency and waxiness makes it more useful for coarse, difficult-to-manage hair.

Formulation II is a soft, smooth cream with a viscosity of 24,000 cps (Brookfield, 20 rpm) with a *p*H of 6.7. It is much oilier and would be more suitable for dry scalp and easier to manage hair.

Brushless Shaving Cream

To prepare a brushless shaving cream that gives a clean, close shave with any good razor blade, use Carbopol 934 to give added smoothness to the formulation:

(*Continued on page 763*)

THE SELECTION OF PACKAGING EQUIPMENT

BY ARTHUR R. SCHAEFER

CUSTOMER SERVICE MANAGER, NEW JERSEY MACHINE CORPORATION

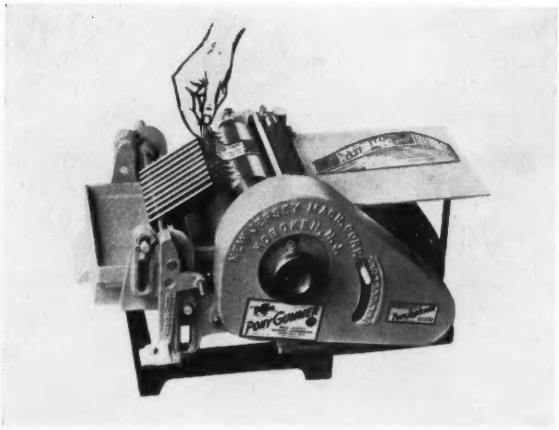


Fig. 1—table gummer, hand model packaging machine.

A packaging machine is nothing more than an assembly of castings, cams, gears, levers, nuts, bolts and gadgets, none of which know any better than to do the same thing each time someone presses the start button. Why then does the same model of machine perform poorly in one installation and well in others? The answer is, of course, that mechanization involves more than machines alone; it involves materials and people as well. To perform properly any packaging machine must be properly applied to the job intended, be properly understood and handled and be operated with packaging materials which are uniformly of the proper specification.

How then do potential users of packaging machines, accomplish this "Happy Marriage" of machine, materials and people? In my opinion, it can only be done by an *orderly step-by-step procedure* that begins right from the time the need for mechanization is first recognized.

The steps and considerations to which I refer are these:

Economic justification
Locating the right machine
Placing the right order
Testing prior to shipment
Actual installation
Instruction of personnel
Performance testing & acceptance
Spare parts & service manuals
Maintenance program.

*Taken from the original paper presented at the Packaging Management and Technology Seminar at St. John's University on November 15, 1961.

Economic Justification

The detail and complexity of economic justification of equipment expenditure, will depend of course on the size and complexity of the organization. Machinery is, and should be, bought for a variety of reasons, any one of which may be the most important or determining factor. The major ones are:

To reduce direct labor costs

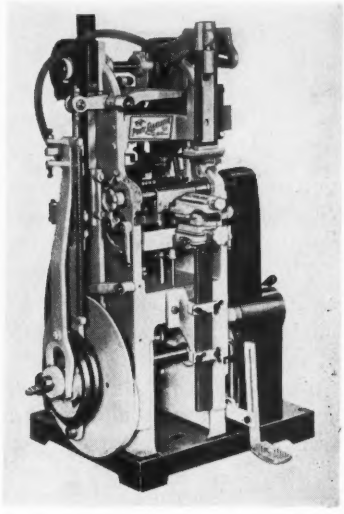


Fig. 2—semi-automatic packaging machine.

To increase production
To save space
To reduce waste
To improve product quality
To replace a dwindling supply of skilled help.

Regardless of the predominant need, one simple rule is always true: Equipment is worth buying when *the advantages gained are greater than the cost sustained.* The packaging engineer must equate the ad-

vantages to the costs.

For our purposes, let us assume that a product, its package and selling price have been established, quality standards agreed upon, a sales forecast made and present production costs known. A new piece of equipment is under consideration whose installed cost is estimated at $10,000; comparing estimated new operating costs with present costs shows a potential savings of $3,000 per year. The question is—do we buy it? Again, the decision will be based on the character of your own company, its depreciation practices and the return your stockholders expect on their money. In our experience however, the annual cost of machinery can be generalized and estimated quite simply. Depreciation can be considered as ten per cent of the investment. If the money must be borrowed, six per cent is a common interest rate or if you were to invest a similar amount of cash, you would expect at least a six per cent return. A fair average rate for machine maintenance with good housekeeping practices is four per cent of machine value per

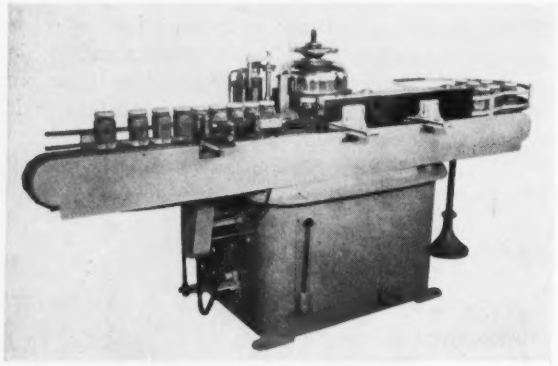


Fig. 3—fully automatic packaging machine.

year. Adding these figures, we then have 20 per cent of investment as an average annual cost of machinery.

Referring back then to our proposed machine investment of $10,000, our annual cost would be 20 per cent of this or $2,000. Since we expect to offset this with annual savings of $3,000, however, it looks like a good buy; we have an annual profit of $1,000. or ten per cent of our investment.

The main thing to remember in justifying a machinery purchase is that procrastination is costly. If a machine is really needed, it is being paid for anyhow. If the decision was delayed on our hypothetical purchase above, we would be losing that $1,000 per year. And, nothing really changes on your balance sheet when you invest in a machine. Your cash account goes down, but your capital equipment account goes up by the same amount and both are asset accounts, so you haven't changed the net worth of the company one bit.

Locating the right machine

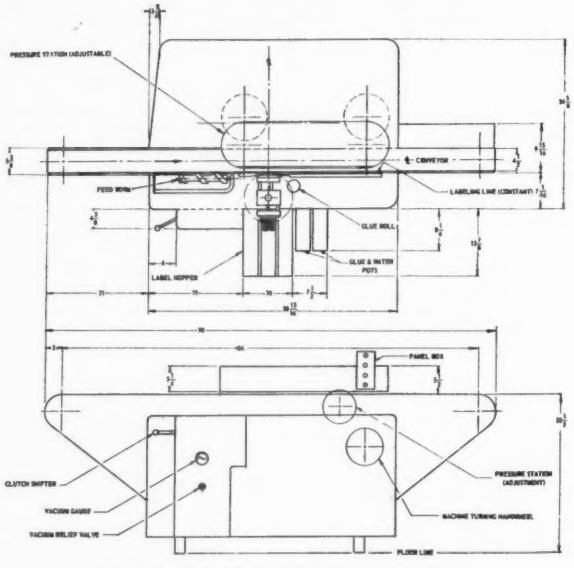
Let's assume you have sold your management on the equipment purchase. The next job is to locate the right machine for your requirements. To a great extent, your value to your company as a packaging engineer, is measured in your knowledge of the equipment field.

There are five major sources of information on equipment and the firms that offer it. These are:

People
Publications
Trade Shows
Plant Visits
Associations

Some of the people come to you as equipment company salesmen or their agents. They don't always expect an immediate order, so they are bound to tell you what is new in their line for future reference. The technical representatives of your material supplier firms are frequently a good source of information on equipment too. In many cases they have worked closely with a machinery supplier in the development of a new machine and can give you valuable leads or information for your equipment files. And don't overlook the people in your own organization and, your counterparts in other departments or branch plants, who are facing the same kind of problems that you are.

Publications are of course a prime source of equipment information. Most of the packaging magazines carry not only regular machinery manufacturers advertising, but many have new equipment sections and feature articles on new machines. Frequently they run special issues in conjunction with a packaging show or other event and, of course, *Modern Packaging* publishes annually an encyclopedia which is a very complete listing of manufacturers of both ma-



Machine floor plan supplied with specifications.

(*Continued on page 802*)

Packaging and Selling

Johnson & Johnson's Arrestin Nose Drops and Spray, in a new package designed by Donald Desky Associates, of white polyethylene, has a bold black, white and red color scheme to tie it in with J&J's Arrestin Cough Medicine for a family look. Two heads serve customers who prefer drops, or spray or both. The convenient pocket-size package has a high impact brand identification for point-of-sale, and a blister pack (not shown) keeps the package clean, discourages pilferage, and makes it possible to hang Arrestin on a spindle display.

Work saver, profit maker—aerosol!

No one had to sell Mrs. America on the advantages of push-button laundry starch. The need was there—what with growing families, children's clothes, party dresses, extra laundry work at home. Spray starch was a welcome work-saver, but formulating it for aerosol packaging posed a real manufacturing problem.

One of the first to solve it was Aerosol Corporation of America, whose *Glis* spray starch was introduced early in 1960. Immediately successful, Glis is a leading brand today. So convinced is Aerosol Corporation of the tremendous potential of aerosols, it markets aerosol products exclusively.

Such latent demand exists for other new aerosol products—perhaps for a product you now market in another form. You need no heavy capital investment or all the answers to "go aerosol." *Write Pennsalt.* As producers of ISOTRON® propellents—used to power scores of successful products—we offer valuable counsel to marketers—can recommend contract packagers who can supply you with all the help you'll need with product formulation, technical aid and packaging.

ISOTRON—*The Key to Modern Living*

Pennsalt® Chemicals
ESTABLISHED 1850

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Three Penn Center
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Inside Detroit's Colo Hall during the recent PMMI show.

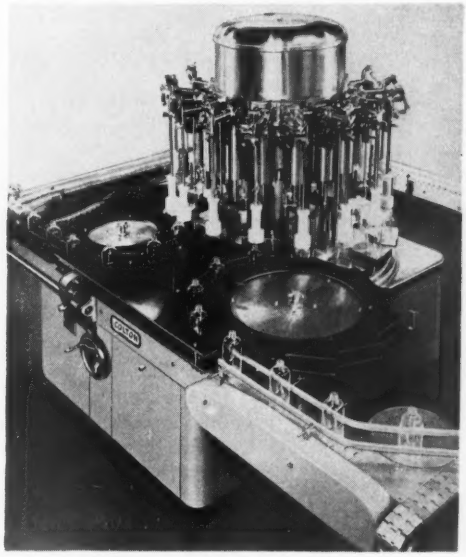
PMMI REVIEW

The October DCI carried a preview of the Packaging Machinery Manufacturer's Show, held recently in Detroit. We have followed that up with a report of the show, including some of the outstanding machinery exhibited.

The 1961 Packaging Machinery Manufacturers Institute Show, which closed November 10th after attracting 14,787 industrialists from 49 states and many foreign countries, was the most successful show to date. In addition to the displays of packaging machinery and related materials of 220 manufacturers, a technical seminar on planned, preventive maintenance was conducted.

The show committee members were W. W. Anthony, Jr., executive vice-president, Crompton and Knowles Packaging Corporation; PMMI president, Kenneth B. Hollidge, executive vice-president, Arthur Colton Company; W. J. Rothfuss, general manager, Cryovac Company, equipment division; Richard Wellbrock, vice-president, New Jersey Machine Corporation; K. M. Peterson, advertising manager, Pneumatic Scale Corporation, Ltd.; A. R. Stevens, vice-president, Elgin Manufacturing Company; and Russell L. Sears, PMMI's executive director.

Arthur Colton Company, division of Snyder Corporation, displayed the No. 116 high-speed volumetric rotary filler, a 16 station machine with filling speeds ranging from 110 to 320 containers per minute, for filling pastes, creams and liquids into jars, cans or bottles. Fills range from ¾ to 32 fluid ounces, and containers from ½ to four inches in diameter and up to ten inches high can be handled. The hopper has a 35 gallon capacity.



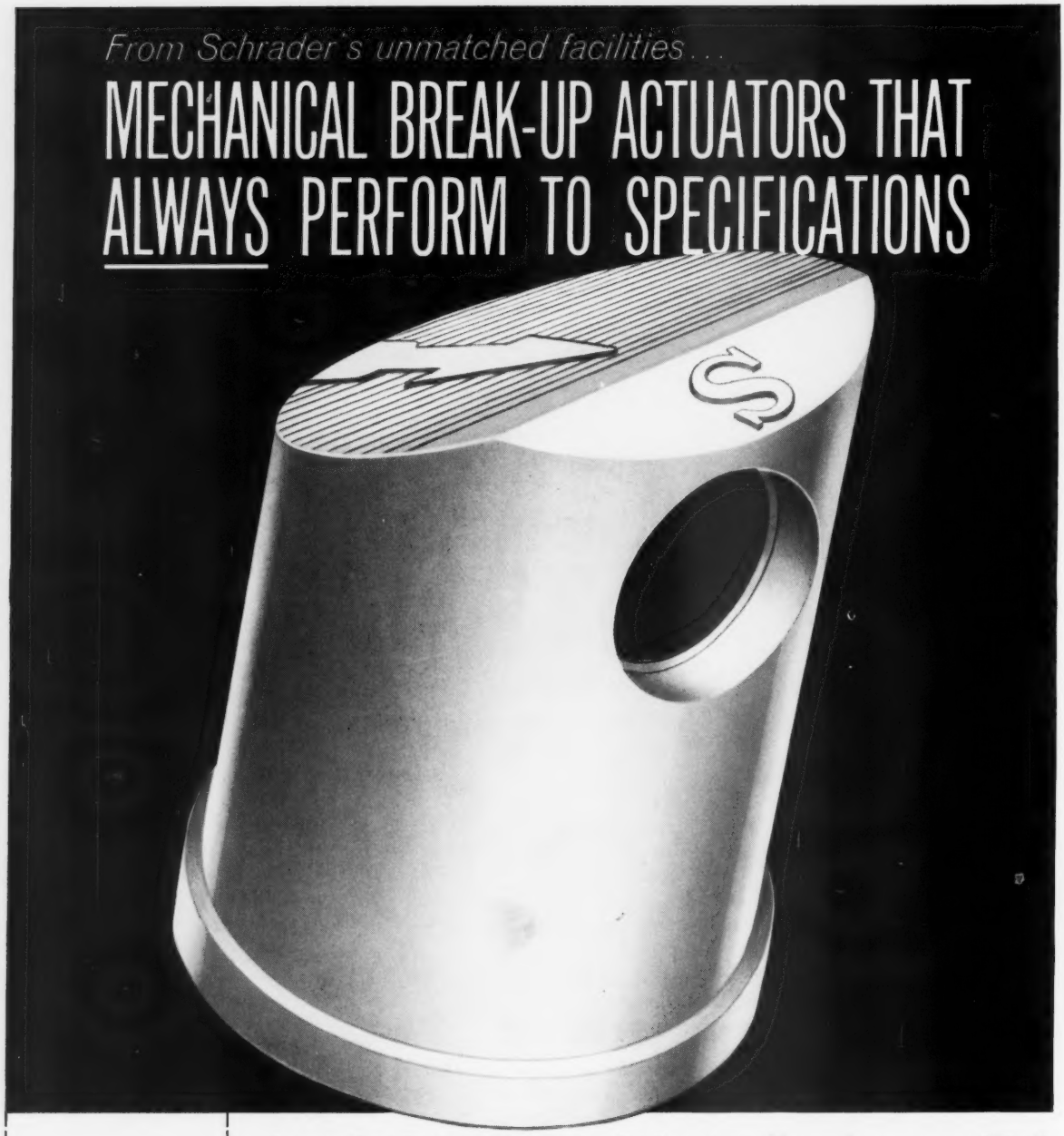
High-speed volumetric rotary filler.

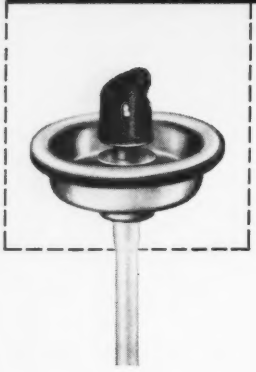
C. W. Logeman Company's table model piston filler

(Continued on page 798)

From Schrader's unmatched facilities . . .

MECHANICAL BREAK-UP ACTUATORS THAT ALWAYS PERFORM TO SPECIFICATIONS





An aerosol product can only be as good as its actuator. You can be *sure* your millionth actuator will create the identical spray pattern as the first . . . with Schrader. *Fact:* This Schrader mechanical break-up actuator is 100% tested during production, and in addition spot-checked at 150°F. to 150 lbs. psi. *Fact:* Behind it are Schrader's unmatched engineering and research facilities, plus unique production techniques. *Fact:* This milestone achievement in aerosol engineering dispenses a product-tailored pattern . . . and always in the right direction.

Call on Schrader for the finest in aerosol engineering and technical help . . . from the company with the most modern facilities in the aerosol field.

Schrader® a division of SCOVILL Aerosol Valves

A. SCHRADER'S SON • *Division of Scovill Manufacturing Company, Inc.* • **470 Vanderbilt Ave., Brooklyn 38, N. Y.**

Cough Syrup Cartons

This is the first in a series of comments by a package design team on current drug and cosmetic packages.

BY HARRY & MARION ZELENKO

The nine packages shown here represent a random sampling of cough syrup cartons available in most drugstores. These are nonprescription items which require point-of-sale response. In no instance can any one package be regarded as "soothing." As a matter of fact, the chopped up, jangled quality of design would suggest irritation, if nothing else. In our opinion, the packages seem related, but only in their similarity and lack of character. Though some may explain the product's form, none of them successfully project its "promise."

The over-all similarities and failings may be summed up as follows:

1. Eight out of the nine packages use *red*.

2. All of the packages, but one, use panels to carry their product name.

3. In all cases the product names are in a sans-serif style.

4. In all but one package, lettering has been used for product names rather than type. Unfortunately, lettering failed in its normal task of elevating both legibility and esthetics.

5. Some of these packages have pseudo-medical illustrations on the backs.

6. Four of the packages use illustrations to show how the remedies are taken; and three of them use illustrations of spoons. One utilizes an illustration of the bottle. This is, of course, redundant. Most certainly, a carton displaying the words "cough syrup" will not contain tablets.

7. Eight of the packages say "cough syrup" or "cough medicine."

8. Some of them utilize in the display a technical word such as Silentium or Methorphan. These terms no longer mean anything to the average consumer as well as the jaded hypochondriac.

9. Seven of the cartons cover indications as part of their story on the front panels. It is debatable as to whether this kind of verbosity adds anything in terms of capturing the eye or making the sale.

10. Again, all of the packages shown seem cluttered and busy, and in our opinion, none project either an ethical image or the effectiveness of the product within. The old "medicine show" packages had more character and individuality. There seems to be an absence of discipline and restraint in the design of these packages, and this, coupled with poor typography, too much or poorly organized copy, add to their busy similarity. The package should also function as a poster for successful point-of-sale merchandising.

11. The front of each box contains from five to seven type faces. The type face count includes lettering where substituted for type. An agglomeration of conflicting faces must necessarily result in a rasping busy-ness. This could easily be avoided by the judicial use of one, two, or perhaps even three type faces.

In no case has any one package of this random group resorted to symbolism as a means of achieving quick recognition as well as product enhancement.

To a large extent, cough remedies are impulse items. However, these box designs would appear to

(*Continued on page 827*)

LERMER RIGID PLASTIC CONTAINERS OFFER UNIQUE PACKAGING ADVANTAGES FOR PHARMACEUTICALS/DRUGS/COSMETICS/SUNDRIES

For the utmost in ease of packaging, visibility, safety and protection, nothing compares with the desirable features of Lermer RIGID plastic containers for tablets, pills, vitamins, lipsticks, bobby pins, swabs, etc.

• Printed or decorated up to 4 colors on crystal clear, transparent or opaque colors • Largest line of RIGID plastic containers • 1/5 the weight of glass — greatly reducing ever-increasing shipping and handling costs • Lightweight and shatterproof — with rigid wall protection • Economical—with customer re-use value • Also made of new high density polyethylene — Poly-Opal*. Are chemically inert, stain resistant and have lower permeability to moisture and gases than conventional polyethylene. **Also a complete line of flexible acetate containers.** *T.M.

Write for full-color catalog, samples and prices.

LERMER PLASTICS, INC.

502 South Avenue, Garwood, New Jersey

PIONEERS AND SPECIALISTS IN PLASTIC CONTAINERS SINCE 1919

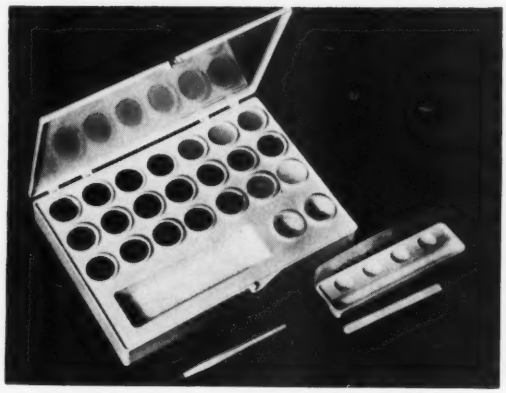
Packaging and Selling

We have read in advertisements that Dermetics has a new complexion cream called Airborn, said to be "the first . . . the only cosmetic to effectively attract vital oxygen out of the air."

In the editorial report, which we assume was taken from a press release, it states that "Airborn Cleansing Treatment is designed to release oxygen deep down in the skin as it floats out soil, blemish-causing impurities and make-up."

Advertising in the same issue states, "Until now, no cosmetic could properly supply additional oxygen for the complexion. Through a completely unique action, Airborn draws this vital beauty essential, oxygen from the air . . . captures its rare potency . . . utilizes it . . . to give you a complexion refreshed . . . reborn each day."

Again editorial mention states that Airborn Night Treatment assures oxygen retention all night long.



Professional Kit. A complete makeup wardrobe is supplied in this professional kit by David Lawrence. A lightweight, white plastic box, convenient for traveling, contains five eyeshadow shades; five blue cast and five orange cast lipstick shades; three blender shades; purse size tote box with four cups for carrying the shadings the user creates; rouge; hyd-it for disguising blemishes and fatigue lines; a spatula, a palette and brushes for applying lipstick and eyeshadow. A kit-diagram and an informative brochure are included.

In a research report of a leading packaging company, it was stated that styrene is being studied as a likely candidate to succeed glass for some cosmetic uses. The price of this resin has dropped to the point where containers can be manufactured thicker and in more colors than glass, and yet be less expensive, as this company believes.

It was also reported that the company's bottle and tube division can print irregularly-shaped containers, in four colors, at rates up to 100 bottles a minute.

If you are not satisfied with the colors used for your products, packages, mail pieces, and so on, you have plenty of opportunity for choice, and you must be a rare person if you cannot find exactly the color that you want.

We have forgotten the total number of colors that have been classified and named, but it seems that there is a sufficient number identifiable in the range offered by Eastman Tenite Polypropylene. There are 42,000 colors here. This would seem enough for the most critical designer.

According to United States Industrial Chemicals Company, use of conventional polyethylene for blow molding should reach 60 million pounds by 1965. Most of this will be used by manufacturers of "squeeze bottles."

In this huge mass market of America, countless small volume products prosper and flourish because they serve either a limited market in which there is a real need for the product, or a highly specialized market serving a highly specialized purpose.

We hear, around the trade, that a new market has developed for foot powders, and that this already is providing enough business for several companies.

An example of a highly specialized product in one of the toughest branches of our industry is a toothpaste by Thos. Leeming & Company, called Thermodent, that is ethically promoted for a variety of conditions, termed dental hypersensitivity.

J. B. Williams Company stated that it will spend $5 million in the next year to introduce its new Geritol breakfast vitamin. This is the amount of money it takes to make any substantial impression on this enormous American market today.

What strikes us as a high spot in drug research, particularly in that field expanding the industry's market beyond the basic field of human health, is in a so-called anti-rabies program.

It appears that the fox, a serious source of rabies, turns his thought to family life only once a year. An estrogen hormone has been found, that, when given in proper dosage, makes both male and female fox completely indifferent to one another. This hor-

(*Continued on page 734*)

A TOTALLY NEW MIXING CONCEPT!

THE CROWN VIBRO MIXER!

● A remarkable new mixing capability for the chemical industry!

● Makes all other methods of mixing obsolete!

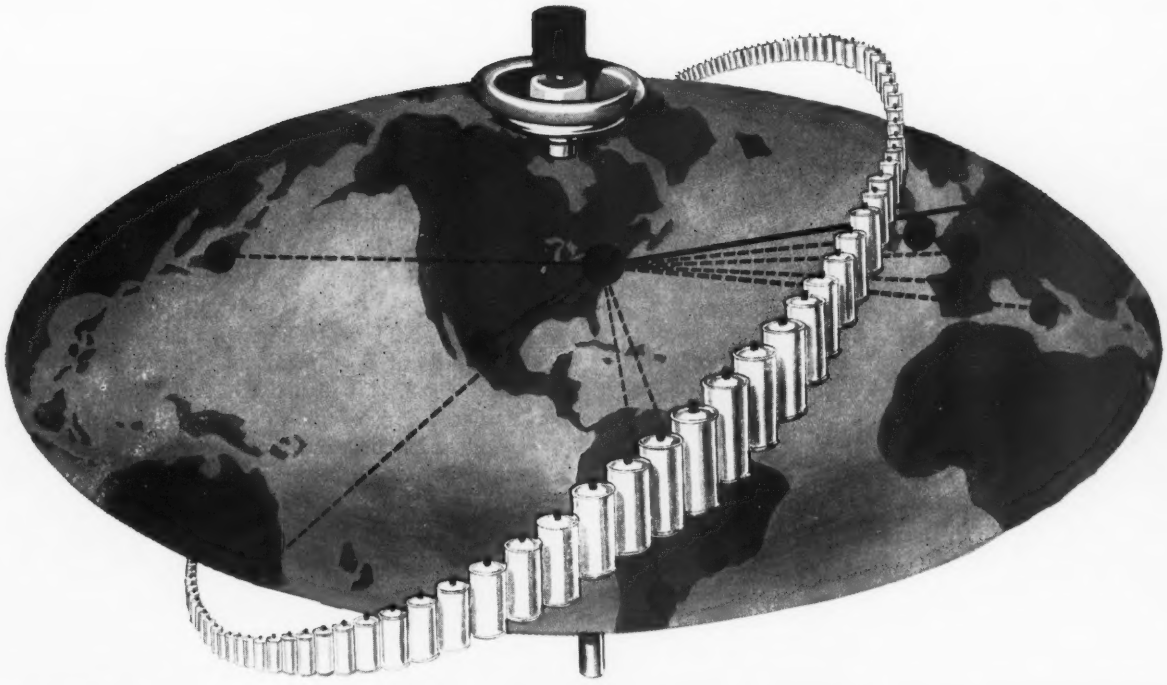
Mixes, agitates, blends, and performs any combination of these, by customized liquid motion set up by a special vibratory driver! Wide viscosity range! Perfect sanitation! Greatly simplified maintenance! Your Crown representative will give you complete details!

YOUR PACKAGING DESERVES CROWN QUALITY

machinery • cans • crowns • closures

CROWN CORK & SEAL CO., INC.

Machinery Div., 1200 Newkirk St., Baltimore 24, Md.



Licensees Under Precision Valve Corporation Patents

ARGENTINA
Att: Mr. C. A. Jacobi
Fabrica Sudamerica de Envases S. A.
Centenera 2644
Buenos Aires

AUSTRALIA
Att: Mr. H. A. Crothers
Containers Limited
265-275 Franklin Street
Melbourne

BRAZIL
Att: Mr. Helmuth Schiedlich
Metalurgica Matarazzo SA
Rua C. Pinto 575
Sao Paulo

FRANCE
Att: Mr. Denis Jacob
Societe Elekal
3 Avenue Erlanger
Paris, 16 eme

ITALY
Att: Count Nuncio Scribani-Rossi
Bombrini, Parodi-Delfino
Via Lombardi 31, Rome

JAPAN
Att: Mr. Taisho Ikeya
Toyo Aerosol Industry Co., Ltd.
43-2 Haramachi
Ota-Ku, Tokyo

MEXICO
Mr. Fernando Castillo
Envases Generales Continental De Mexico
Av. Oriente 107 #114 Col. Bondojito
Mexico 14, D.F.

SPAIN
Att: Dr. Pedro Junyent
Industrial Iberica Quimico Farmaceutica SA
Loreto 8
Barcelona 15

UNITED KINGDOM
Att: Mr. H. Robin Hearn
The Metal Box Company Ltd.
37 Baker Street
London, W1, England

TO SERVE YOU BETTER ANOTHER STRONG LINK

• Precision Valve, pioneer in the development and manufacture of quality-proved valves for aerosol dispensing, adds a new link to its world-wide marketing complex in Europe.

Aerosol marketers and fillers everywhere are assured of quick, efficient service through our new and most modern manufacturing, research and sales facilities. Direct contact between our home office in Yonkers and our international manufacturing licensees assures our customers of world-wide product consistency and the widest range of aerosol valve development.

Look to Precision Valve's leadership . . . its engineering know-how . . . its production and research facilities . . . its ability to design and recommend the right valve for your specific aerosol packaging requirements.

PRECISION VALVE CORPORATION

700 Nepperhan Avenue, Yonkers, New York

Sales Agents for Precision Valve Corporation

BENELUX
Att: Mr. C. Lindeman
Limex Trading Co.
Pettelaersweg 13
S-Hertogenbosch, Holland

DENMARK
Att: Mr. B. Harup-Hansen
B. Harup-Hansen—Emballageagenturet
Stadfeldtsvej 28
Copenhagen-Valby

FINLAND
Att: Mr. L. Timgren
H. Bergenheim & Co.
Rahapajankatu 1
Helsinki 1

GREECE
Att: Mr. N. Athanassiadis
Agricultural & Technical Enterprises
19 Edward Law Street
Athens

NEW ZEALAND
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W. H. Huthnance & Co.
R. S. A. Bldg., Dudley St.
Lower Hutt City

SWEDEN
Att: Mr. C. G. Wollin
Kemiflor AR
Sveavagen 9
Stockholm

mone can be distributed, in chunks of meat, by hand or even from planes.

The effects of the hormone last just long enough to carry the fox past this annual mating period. The result, no baby foxes.

As one would expect, fox hunting clubs, nature lovers, dog owners who fear their dog will eat some of the treated meat, are protesting. Nevertheless, it seems to us that the industry is on the trail of a market that may hold lusty opportunities for expansion in the economic control of national population.

A Parke Davis executive has just told the Hawaiian Pharmaceutical Association that tranquilizer sales, which last year amounted to $225 million, will reach $690 million in annual sales in 1970.

We hope our Hawaiian fellow citizens have drawn no conclusions from this statement other than the assumption that the next ten years will mean booming economy in America.

It should be perfectly obvious, as the grocery supermarket increases its share of the total cosmetic market, that it would also begin to turn some of its basic operating policies toward the health and beauty department.

One of the basic operating policies of supermarkets during the last ten years has been a progressive development toward private labels. Products selected for private labels have been, of course, in the volume classifications and, strangely enough, in most classifications, supposedly ruled by leading national brands. In other words, the supermarket seems to find the best shelter for their own private label development in the very fields where independent manufacturers are spending the largest amount of money for advertising.

The latest to enter the private label field in this trade has been the A&P with a new line of low-end household products and beauty aids.

These products are sold under the label Penn Test and are said to be manufactured by the Penntest Pharmacal Corp., subsidiary of Pennex Products, Verona, Pa.

The products in this line include aspirin, 100 for 19 cents; antiseptic mouth wash, pint bottle, 29 cents; petroleum jelly, pound jar, 49 cents and a multiple vitamin, 100 for 98 cents.

Previously the A&P had been selling basic staples, such as epsom salts, rubbing alcohol and mineral oil.

Educated opinion in these parts believes that the newly organized Federal Trade Commission may be taking a more benevolent idea in enforcing certain sections of the Robinson-Patman Act, particularly in regard to cooperative advertising payments.

This opinion has been heavily influenced by the recent three to two decision by the Commission in the case of Shulton and the violation of the act in discriminatory promotion payments to J. Weingarten, Inc. One of the dissenting commissioners based his opinion on a recent trial court ruling which said that "good faith meeting of competition" defense can be used not only for acts of price discrimination or the furnishing of service in a discriminatory way, but also as a defense against such discriminatory payments as that in advertising.

Is there a trend in self-service toward "take it or leave it?"

The Retail Controllers Association was given an example of the way self-service operates in the budget stores of Joseph Horne Company.

These stores operate at about 95 per cent self-service. Clerks are instructed not to approach the customer. They are told to be available to keep racks straightened and stocks out, but that approaching a customer tends "to delay her or scare her off." "In any event, it tends to hurry her and distract her."

What kind of selling this is we wouldn't know. It hardly seems the kind that builds American business.

To a great many people selling franchise products, Macy's has been a hot potato. This is particularly true of franchise products in cosmetics or the higher prestige lines, where anything like price cutting brings a shiver.

A Macy's senior vice-president testifying recently at a Federal Trade Commission hearing stated that Macy's was bound by venders in the following ways:

(1) Some venders would not let Macy's buy merchandise until other retailers had had a first opportunity to see the line.

(2) Some would sell to Macy's only on the proviso that Macy's would not advertise the product.

(3) Some would sell to Macy's on the agreement that the product would not be displayed in Macy's window.

(4) In some instances, Macy's was not allowed to buy a firm's primary brand, but only its secondary brand.

Gayelord Hauser, who has done a great deal of writing and romanticizing about food and diet, has now published a book "Mirror, Mirror on the Wall: Invitation to Beauty." Among the products discussed are:

(a) A fabulous hair-rinse, to give your face a frame of beauty—made with ingredients from your own kitchen.

(b) A mayonnaise facial! Sounds odd? You won't think so when you see the lovely results.

(c) A vinegar cure for stubborn dandruff.

(d) A sensational milk bath—every bit as good as Anna Held's, costing only pennies.

(e) A 10-second slenderizer. "Impossible," you say? Just try it in front of a mirror and see for yourself.

Many other remarkable beauty aids that cost practically nothing are mentioned. •

NEWS IN PACKAGING...

1. Ingenue Cologne, **by Sule, Inc.,** for the young woman in her twenties, is a floral bouquet with an exotic tone quality, packaged in a metal spray container decorated with hues of lavender, purple, pink, and alternating spiral bands of gold.

2. Designed to represent the skies and seas of France, the outer packaging of **Air de France de Lentheric** is a blend of blue, mauve and aquamarine. The fragrance is a floral one, and the crystal flacon rests on a blue satin mounting.

3. Refillable spray package holds 3⅛ drams of Femme or Madame Rochas perfume by **Marcel Rochas.** Brass imprinted container, with a four-color tapestry pattern, was designed by **Risdon Manufacturing Company.**

4. **Bergdorf Goodman** has introduced its three major fragrances, Miss Bergdorf, Nandi and Number Nine, in two-ounce, one-piece aerosol containers designed by **Peerless Tube Company.** Aerosol colognes are three times normal strength.

5. **DeWitt's Cold Sore Lotion,** with applicator and cotton, has a package designed in black, gray and pink, to give it sales appeal and associate it with other new packages in the line.

6. Cover Girl Face Powder by **Noxema,** in light, medium and dark shades, has medicated and antiseptic ingredients. Package is a gold and white round powder box embossed with the initials CG. Square outer box is also gold and white.

7. So pharmacists can affix prescription directions to the package, **Peerless Tube Company's** easy-peel strip coat has a small tab on the shoulder of the tube that facilitates stripping of lithography from metal tubes of ethical drug items.

8. A Plus hair condition, formulated by **Nutress Laboratories, Inc.,** eliminates the need for additional styling lotions and is packaged in a snip-off plastic tube designed by **Bradley-Sun,** division of American Can Company.

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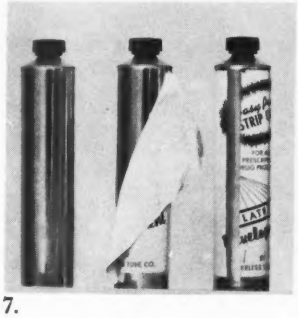

7.

8.

Armstrong Laboratories
Cold Fill Process

Armstrong Laboratories, Inc., has installed a Bally all-metal sectional walk-in cold storage vault for packaging drug concentrates. Research has proven that by chilling the aerosol containers and the drugs for approximately 12 hours in a zero degree room, evaporation of the propellant at the time of filling is kept to a minimum.

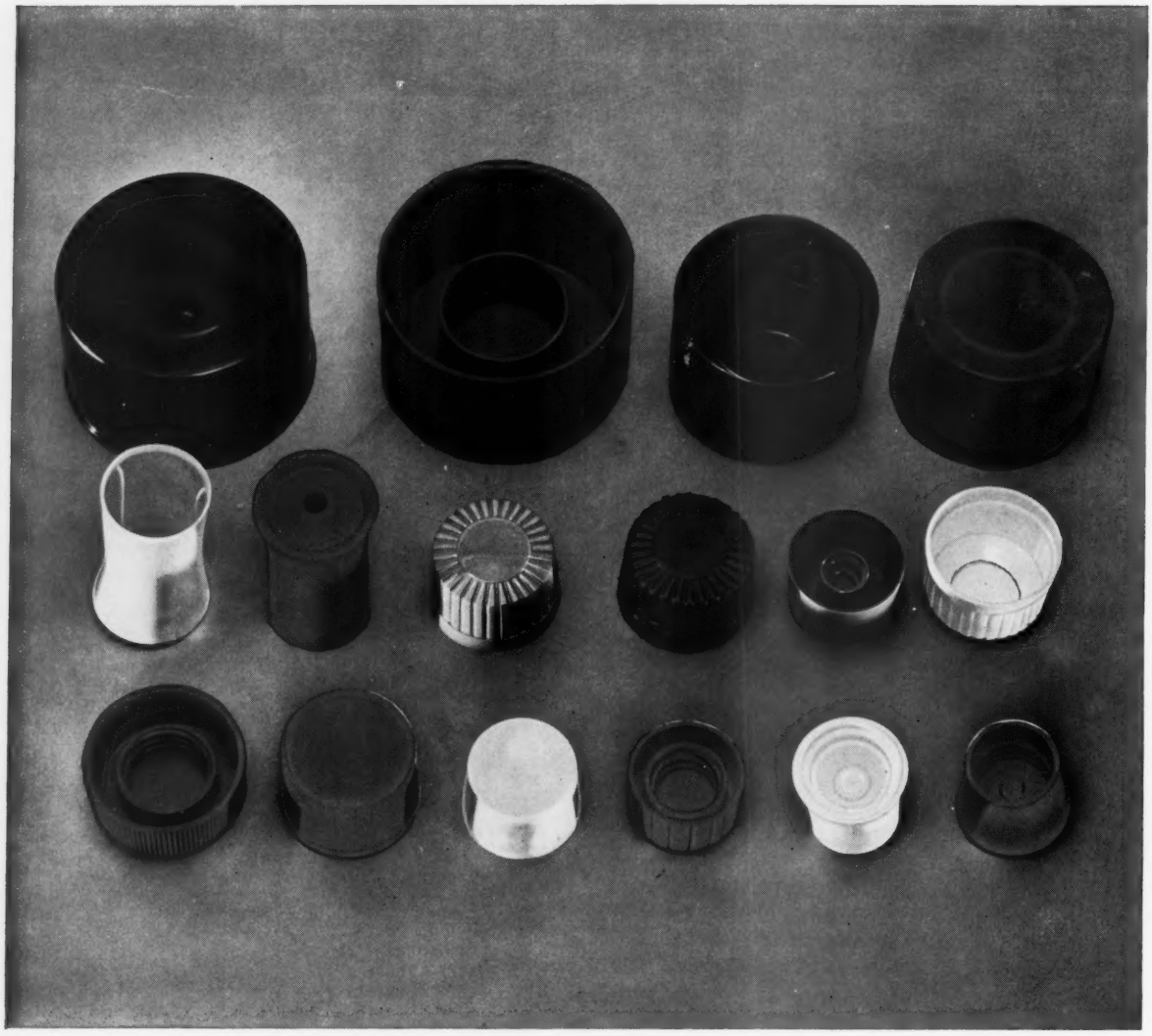
Polypropylene Lipstick Cases

Twenty-two shades of Avon Fashion lipstick are packaged in lustrous cases molded of Tenite polypropylene plastic, made by Electric Manufacturing Company. Because the colors are an integral part of the plastic they cannot be chipped or rubbed off, and the plastic is highly resistant to the essential oil ingredients of lipstick.

Contract Packagers Directory

The fourth edition of the *Directory of Contract Packagers and Their Facilities* contains 593 listings of domestic and foreign companies, and information on acceptable products, types of packaging and quality control. Copies at $5.00 each, are available from the Packaging Institute, 342 Madison Avenue, New York City 17.

What's News in Plastics...



Cap it with Escon® polypropylene

The resilience of Escon lets you mold complex closures with reverse tapers—*without* parting lines. The rigidity of Escon permits use of conventional threads. And closures of Escon can be designed to eliminate the need for liners.

Whether you want closures with undercut locks, strip threads, snap caps or screw-on tops, versatile Escon polypropylene does an outstanding job every time, in a brilliant range of colors – including pearlescents.

Enjay does not make closures; it supplies Escon polypropylene to manufacturers of closures, containers and many other products. For more facts about the balanced combination of properties offered by Escon, write to Enjay, 15 West 51st Street, New York 19, New York.

EXCITING NEW PRODUCTS THROUGH PETRO-CHEMISTRY

ENJAY CHEMICAL COMPANY

A DIVISION OF HUMBLE OIL & REFINING COMPANY

ENJAY

NEWS and VIEWS

BY TED KLEIN PUBLIC RELATIONS DIRECTOR*

What Advertising Can Do

These days there are more detractors than defenders when it comes to talking about advertising and public relations. It was therefore with considerable pleasure that I read a recent article concerning a new book, "460 Secrets of Advertising Experts," by Willard A. Pleuthner of Batten, Barton, Durstine & Osborn. Thomas D'Arcy Brophy, one of 20 advertising experts whose "trade secrets" are the subject of the book and who is former president of Kenyon & Eckhardt, Inc., wrote:

"1. Advertising makes jobs.
"2. Advertising reduces selling costs.
"3. Advertising increases company profits.
"4. Advertising increases company security.
"5. Our enormous and growing productivity needs advertising to speed up consumption."

Hear! Hear! Mr. Brophy.

Riddle Me This

Roger Blough, chairman of the board of U. S. Steel, delivered a hard-hitting talk to a group of businessmen recently in California. It bears some repeating. He asked his audience to help solve a mystery, based on a riddle. The last part of the several-part riddle is:

"What is it that Communists from Karl Marx to Khrushchev would have liked most to see destroyed in America—the easier to bury us?"

His answer is: "Behind the production and the accomplishment—behind and supporting our economic freedom and the freedom of religion and of the press—behind the will to work and the choice of work—behind all of these in a free society is one great motivating force, one driving power, and that is the incentive we call profit.

"For it is profit and the expectation of profit that distinguishes our mode of production and our manner of living. It is the tonic and energizer of our economic lifestream."

I suggest that U. S. Steel's commercial time on network TV be used for this message, instead of the institutional ads on how steel is used, for a most effective PR idea. The talk is available from P. H. Adams, vice-president of Public Relations, U. S. Steel, 71 Broadway, N. Y. 6, N. Y.

Selling Papers

A few days ago at lunch one of the editors of a best-selling weekly magazine told me his publication recently sold the largest single number of copies in its history at newsstands. It seems that this big sale was entirely due to the fact that this issue contained a rather complete story on "How to Build a Fallout Shelter."

Friend in question then said that since it was so good for business to run stories about shelters, forthcoming issues of the same publication would have several more pieces on the same subject.

Undoubtedly other magazine editors, TV producers, feature writers for the daily press and other experts in communications are finding they too can boost circulation by talking "shelters."

It is not my purpose to discuss the physical or moral questions on building or not building a shelter, but it does seem important to me to consider the fact that it may not be in the public interest to have the mass media of communications "selling" circulation by talking about shelters.

An analogous situation which is even more disturbing to me is the way we in this country are being subjected to the mass of pictures and stories on how Khruschev is winning the war of idealogies. He is almost always pictured by our popular press as being successful in every way. Only recently when he had difficulty with the Chinese and Albanians, was any sign of Soviet weakness printed in the daily press?

It has always been extremely dangerous for any free nation to relax its vigilance when dictatorships are in abundance. This is, of course, true today. But it is almost as dangerous for us to overburden ourselves with false fear. We have so built up Premier Khruschev and his cohorts that I'm sure to many, the Communists represent unbeatable monsters who had better be placated rather than fought. This dangerous situation can lead us to make grievous errors of conciliation when we should be strong and confidant.

Since the death of Stalin, the Soviet bosses have failed in many areas of the world. In their own country they have fared miserably in boosting agricultural production to meet their people's needs. Recent travelers from Russia tell of how the general population is beginning to grumble about the continued lack of durable and economic consumer goods.

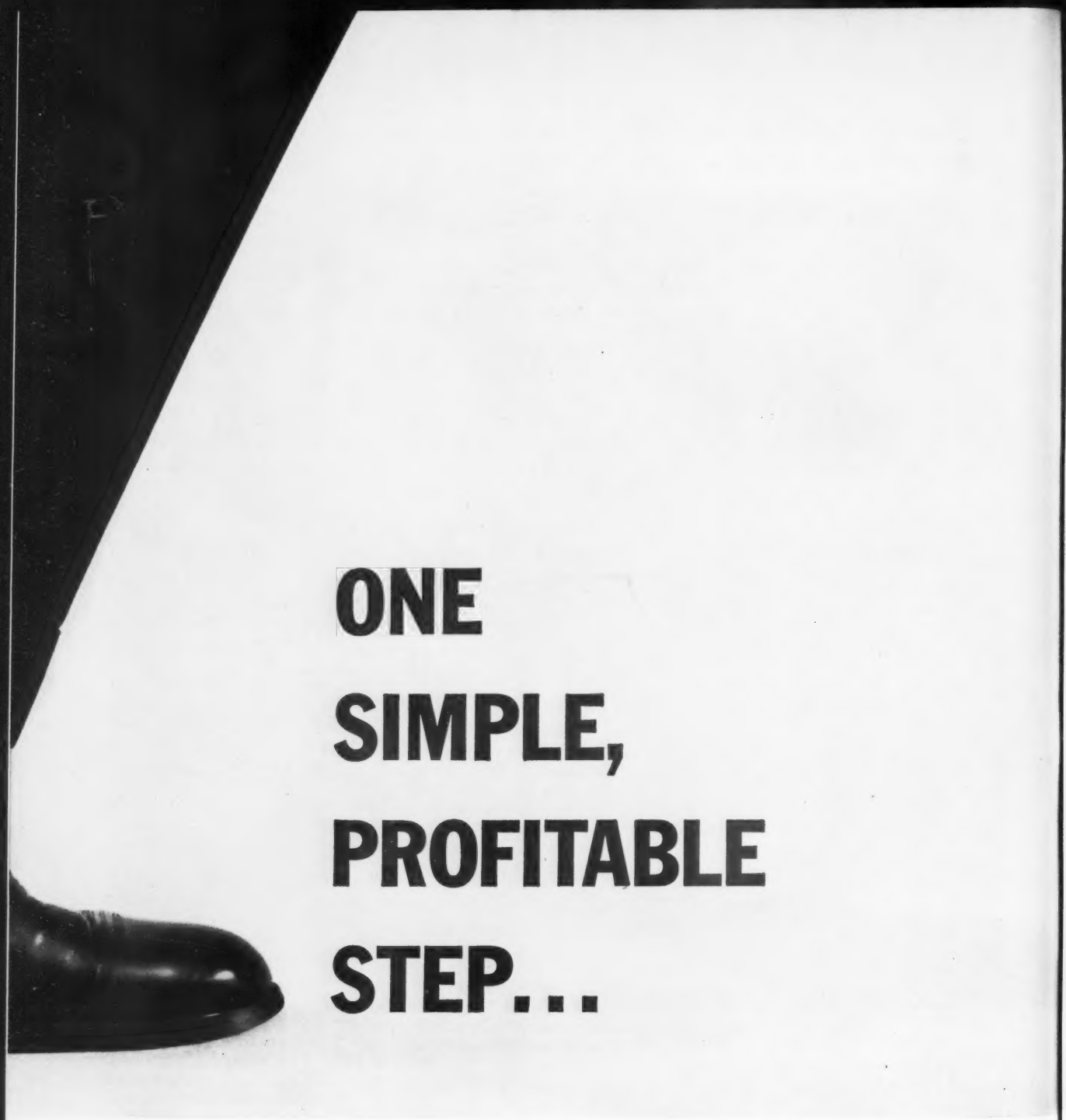
Mr. Khruschev and his friends have succeeded not at all in France, Great Britain, Italy and, of course, West Germany. These were "must win" targets of Stalin. Now they are areas where Communism is weaker than ever before.

In spite of these shortcomings, the news media of this country continues to tell us "that almost all is lost . . . the Soviets are almost victorious in Africa . . . their space vehicles are more powerful, their students better educated, etc." It is important to note this story is *not* appearing in any other NATO nation's press.

In an open society where individuals have the right to vote, we need the facts before we can decide what policy to encourage and what man to elect. We must be vigilant that the news media (which often completely controls the flow of facts) gives us information in perspective. We must admit, in our free economy, our newspaper and magazine publishers' first obligation is to make money. Only after they do this can they consider other goals. But when will we get some responsibility?

We too in the pharmaceutical industry must make a profit, but traditionally we have been able to do this while raising the health standards of our nation to the highest level in the world today. In spite of what our critics say, we still serve the American public to their best interest. But who surveys the press to determine if this is being done? Do we really get the facts in perspective?

*Paul Klemtner & Company, Inc.



ONE SIMPLE, PROFITABLE STEP...

can put you into

That step is to a contract filler! A contract filler relieves you of problems and expenses from the time you decide to work with him. His aerosol "know how" is put to work immediately in preparing your product for the aerosol market. He works with you from research and development stages to test marketing and on through continuous full-scale production.

When you work with a contract filler, you don't have to spend a cent on plant, equipment or production personnel . . . and look at the problems you avoid: You have no fixed capital . . . no taxes . . . no overhead . . . no inventories . . . no

aerosol marketing!

labor problems . . . no warehouse problems . . . no shutdowns or seasonal lay-offs . . . no obsolescence. And equally important, you get the benefit of the contract filler's experience . . . his trained personnel . . . his versatility and adaptability . . . his quality control and fixed costs.

We have highlighted here a few of the more important advantages of doing business with a contract filler. For additional information, and a list of experienced contract fillers, write: "Genetron" Dept., General Chemical Division, Allied Chemical Corporation, 40 Rector Street, New York 6, N.Y.

genetron®
aerosol propellants
Putting the "push" in America's finest aerosols

Allied Chemical

GENERAL CHEMICAL DIVISION
40 Rector Street, New York 6, N.Y.

New Products

PHARMACEUTICALS

Metrecal Wafers (Dalton), solid food addition to the company's line of products for weight control, come in packages containing 36 wafers wrapped in four cellophane sleeves of nine wafers each. Nine spice-flavored wafers are the nutritional equivalent of an eight-ounce glass of Metrecal liquid.

Quibron (Mead Johnson), indicated for relief of bronchial asthma and other bronchial disorders, is a low dosage form of theophylline combined with glyceryl guaiacolate, an expectorant. The theophylline is contained in about half the usual dosage volume with less than half the usual amount of alcohol. Relief comes within 15 to 30 minutes and lasts more than four hours.

Balnetar (Westwood), indicated for the treatment of a wide range of dermatoses, is a water-dispersable emollient-tar that provides the same therapeutic benefits as crude coal tar. The solvents used have the ability to preferentially solubilize the portion of crude coal tar having the active therapeutic principles. Only the insoluble carbon particles and pitch are discarded.

Oral Polio Vaccine (Pfizer), for the prevention of paralytic polio caused by type I and type II polioviruses, is one vaccine made from attenuated type I poliovirus and one made from attenuated type II poliovirus. Immunity occurs, usually, in seven to ten days after a single dose of the respective vaccines and usually produces both a systemic and a local response, often breaking the chain of type I and type II poliovirus transmission from one person to another. Available as 100-dose (2 ml.) frozen concentrate in a 5 ml. rubber-stopper vial with a tear-down metal seal, and 10-dose (1.5 ml.) frozen preconstituted vaccine in 5 ml. rubber-stopper vial with a tear-down metal seal and a separate sterile, glass, rubber-stopper dropper designed to deliver approximately 20 drops/ml.

Medrol Medules (Upjohn) have a special *p*H-sensitive coating preventing dissolution in the acid stomach and enabling the release and absorbtion of Medrol to be extended over a long period of time.

Paladac with Minerals (Parke, Davis), a fruit-flavored tablet, containing ten vitamins and six minerals, including iron, is effective for prevention of certain vitamin deficiencies and for supplementing mineral intake.

Pediacof (Winthrop), cough syrup and nasal decongestant specially formulated for children, contains codeine phosphate, neo-synephrine hydrochloride, chlorpheniramine maleate and potassium iodide.

Atha-Powder (Youngs Rubber), a puff bottle deodorant that prevents the reinfection of athlete's foot, has a special medicated talc base and is lightly perfumed. A broad spectrum fungistatic agent inhibits the growth of fungi, and a bacteriostatic agent combats odor causing bacteria.

Didrex (Upjohn), for control of obesity, is a sympathomimetic compound that has relatively little stimulating effect on the CNS or cardiovascular system. Its principle action is depressing the appetite without affecting food appreciation.

Periactin (Merck), supplied in tablet form, is indicated for treatment of itching skin conditions such as urticaria, angioneurotic edema, dermatitis exzema, and chickenpox, as well as many others. Drowsiness is the only frequent side effect.

Rubratope-57 (Squibb) is cobalt-labelled vitamin B-12. New line includes diagnostic capsules, oral solution, diagnostic injection kit. The half-life of Rubratope-57 is 270 days as compared with 1,934 days for Cobalt-57.

Renese (Pfizer) known generically as polythiazide, can be used in treating mild, moderate and severe edematous and hypertensive conditions responsive to diuretic therapy.

Fungicidal Powder (Matco) indicated for treatment of athlete's foot and other fungal skin infections, is both therapeutic and preventive.

COSMETICS

Stanley Home Products has introduced Lady Catherine Hair Spray in a purse-size Peersol container by Peerless Tube Company.

The Realistic Company's new Hair Alive is an instant spray-on conditioner that moisturizes hair and makes combing and setting easier. Available only in professional concentrate form.

Tussy has introduced a petite lipstick, available in ten shades including two new ones, Ginger Pink and Roman Gold.

Noxzema has added loose face powder to its Cover Girl makeup brand. The fragrant powder has medicated and antiseptic benefits. In light, medium, and dark shades.

DuBarry has a new eyebrow pencil that never needs sharpening. Choice of five shades: black, charcoal, grey, brown, and light brown.

Alberto-Culver's new Get Set hair setting lotion has long-lasting wave holding quality and can be used for all textures and colors of hair.

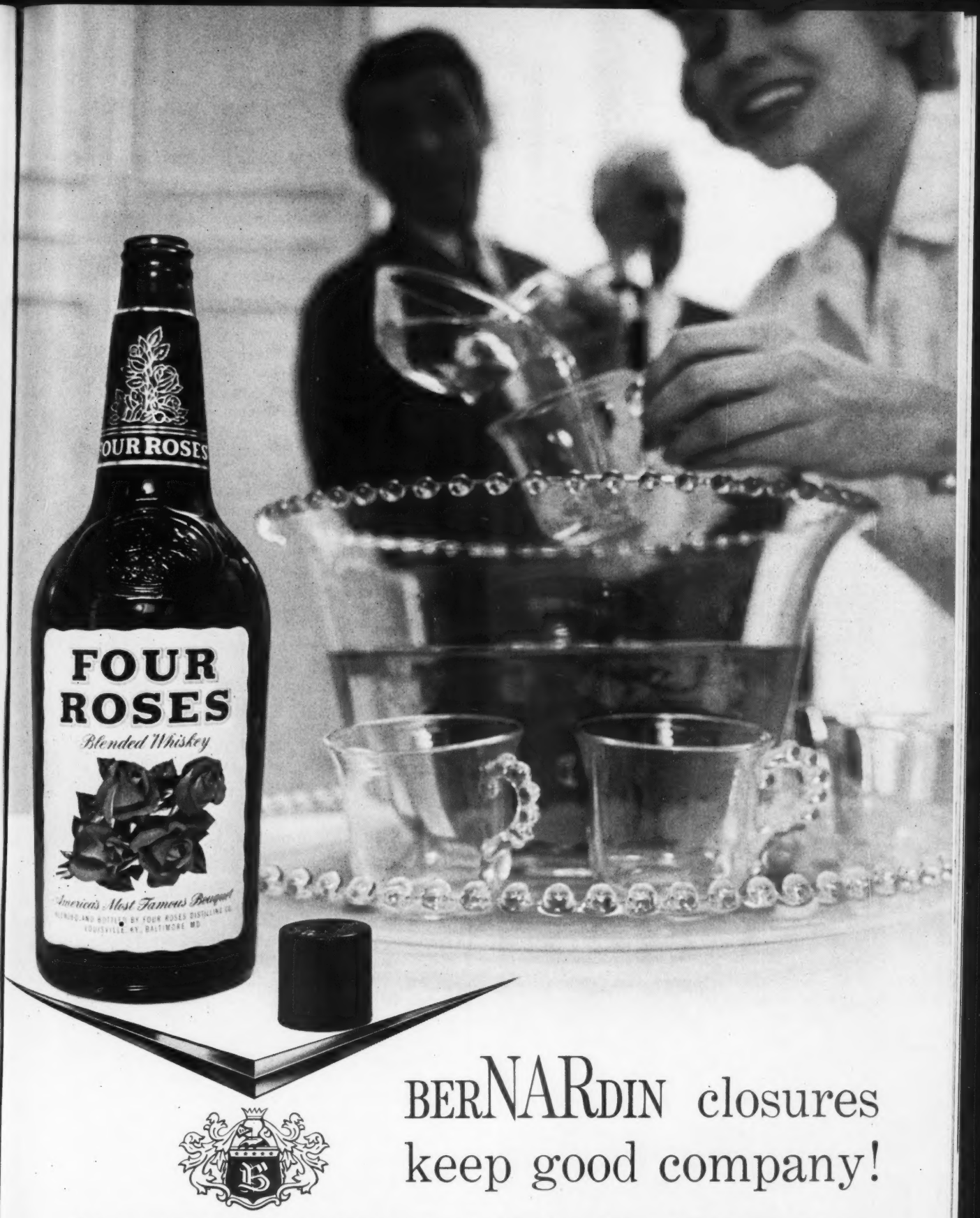
Juliette Marglen's new lipstick, Vin Rosé, is a tawny rose and has the flavor and fragrance of vintage champagne. Also available in nail polish.

PERFUMES

Sule Inc. has introduced its first product, Ingenue, a cologne that combines floral bouquet with exotic overtones and is designed especially for the young woman in her twenties. Also from Sule is Belle Teinte, a complexion vitamin.

Phillip Bernard Company has introduced a line of perfumes in four fragrances: Parfum De Amorosa, Parfum De Dulcines, Parfum De Seraglie, and Parfum De Corolla. Each comes in a spillproof glass pagoda bottle.

BG Perfumes, Inc. has introduced triple-strength spray colognes in three fragrances: Miss Bergdorf, Number Nine, and Nandi.



BERNARDIN closures keep good company!

This is a tribute to merchandising genius; the know-how that made a picture of flowers become "America's Most Famous Bouquet"—that phenomena of nationwide recognition—Four Roses. Naturally, the components selected to share in this valuable picture must meet minutely exact requirements for appearance as well as function. We are proud that our closure completes this happy picture. *May our Closure Craftsmen work with you?*

BERNARDIN BOTTLE CAP COMPANY, INC. EVANSVILLE, INDIANA

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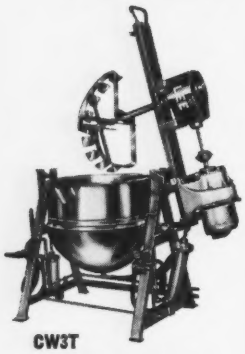
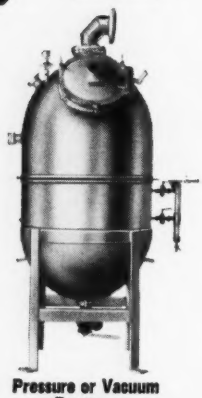
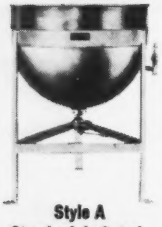


CW3T
Center-line Scraper Agitator Kettle
25 to 1500 gal.



Pressure or Vacuum Reactors
to 500 gal.



Style A
Standard Jacketed
2 to 1500 gal.

Style C
Standard Jacketed
2 to 100 gal.

Style CW
Standard Jacketed
80 to 300 gal.

Also
Special Designs—Large or Small to meet specific process requirements. Vacuum and Pressure Equipment. Process and Storage Tanks.

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A.S.M.E. CODE CONSTRUCTION AVAILABLE

HISTOCHEMICAL ASPECTS OF HUMAN HAIR

(*Continued from page 715*)

follicle and hair root of the ox gave strongly positive reactions for -SH groups, as long ago as 1924, but Buffa,[7] 20 years earlier, had shown them to be present in the hair bulb and root sheath. Several workers[8] had called attention to the fact that, with increasing keratinization, the concentration of sulfydryl decreased. In the keratinizing cortex of hair, the reaction for -SH groups becomes increasingly positive—this is the keratogenous zone. On the contrary, the fully keratinizer hair shows no sulfhydral, but does show a very strong positive reaction for disulphide groups.

Cells which carry out protein synthesis contain much ribonucleic acid. We may say that an increase in deoxyribonucleic acid seems to be related to an increase in synthesis of protein. In addition, it is believed that the amounts of both ribonucleic acid and deoxyribonucleic acid increase during cell division. As a result of the excellent work of Montagna, and others, it seems obvious that the nuclei of the mitotically active cells give the strongest reaction for deoxyribonucleic acid, using the well-known Feulgen procedure. As the process of actual keratinization commences, however, the reaction for deoxyribonucleic acid becomes progressively less intense. Braun-Falco[2] writes that "in an active follicle the nuclei of the undifferentiated cells of the matrix possess the greatest quantity of ribonucleic acid. The differentiating cells of the hair cortex retain strong concentrations of ribonucleic acid up to the lower part of the keratogenous zone, where active protein synthesis ceases, and ribonucleic acid disappears abruptly." It is fairly certain, therefore, that ribonucleic acid is closely linked up with the rates of protein synthesis, and to the keratinizing activity of the hair follicles. Much more research needs to be done on this very interesting and important aspect of hair chemistry.

Among carbohydrates in the hair follicle, glycogen plays an important role. It is present, in large amounts, in the outer root sheath of the active hair follicle, but, as keratinization proceeds, the amount of glycogen decreases. Medulla cells contain more glycogen than do cortex cells, but, again, we find that as the medulla cells become keratinized, so their glycogen content gradually disappears. Montagna has demonstrated that mitotically active cells or keratinizing cells never contain glycogen, and Braun-Falco[9] has shown that, although the cells of the outer layers of squamous cell carcinomas are free of glycogen, the less mitotically active cells near the centre of the tumor contain large amounts of it. Montagna has suggested that the glycogen in the outer root sheath of the hair follicle provides the energy necessary for the synthesis of protein during hair growth; however, we do not yet have sufficient experimental

(*Continued on page 777*)

ODOR COMPENSATION

(*Continued from page 709*)

The great merit of this work of Zwaardemaker's is that it was quantitative; he defined conditions and showed that if these were observed then certain odors would neutralize each other; furthermore, he showed that the compensation rested on a physiological basis and was not due to chemical reaction of the component smells. In applying his results to today's odor problems, it has to be remembered that Zwaardemaker was working with odorants at concentrations not very many times their threshold value. Even 100 times the threshold value of an odorant is not as a rule a strong smell: ethyl mercaptan is detectable in $3(10)^{-7}$ per cent in water, but $3(10)^{-5}$ per cent mercaptan is still only a relatively weak smell. There is no indication in Zwaardemaker's work that strong smells can be neutralized, and the projection of Zwaardemaker's work to include these is justifiable.

Backman's work

Backman[6] found experimentally that the odors of benzene and those of some of its homologs would neutralize each other almost to the point of complete disappearance, but he emphasized that definite proportions were necessary.

Latitude in Concentration of Pairs

Zwaardemaker was not very definite about the latitude allowable in the concentrations of the two components of a pair. He suggested that sometimes there was some latitude but on the other hand some of his experimental details showed that in the cases detailed there was very little latitude. For example,[3] he made some experiments on February 19, 1889, with two single olfactometers, one in front of the other, and found that: Compensation was achieved with 10 cm (cm refers to olfactometer setting) wax and 9 cm Tolu balsam, but

10 cm wax and 8 cm Tolu balsam gave an odor of wax, and

8 cm wax and 10 cm Tolu balsam gave an odor of Tolu balsam.

A few days earlier he had found:

10 cm rubber and 8.5 cm paraffin gave compensation, but

10 cm rubber and 8 cm paraffin gave a rubber smell, and

10 cm rubber and 9 cm paraffin gave a paraffin smell.

The question of latitude allowable for compensation to obtain is clearly one of importance from the commercial standpoint. In the home it would certainly, and in the factory it would probably, be impossible to adjust the concentrations of a pair with such nicety as seems to have been required in Zwaardemaker's experiments.

(*Continued on page 776*)

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Natural PEARL PIGMENT CONCENTRATES
We have taken Nature's unique crystalline pigment guanine from the scales of fish and highly purified it specifically for cosmetic formulations.
Non-Lead Synthetic PEARL PIGMENT CONCENTRATES
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RONA PEARL is a new and distinctive high fashion color for:
Nail Enamel — CN base
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NEWS

General News

William B. Graham, left, president of Baxter Laboratories, Inc., pins a campaign button on the lapel of Ralph A. Olson, vice-president and manager of the Chicago Office of S. B. Penick and Company, to signal the beginning of the Crusade of Mercy within the drug and cosmetic industry. The proceeds will go to 150 agencies of the Chicago Community Fund and the American Red Cross.

Hoyt Grant

Walter L. McKenzie, a graduate student at the Massachusetts College of Pharmacy, has received a grant of $500 from Hoyt Pharmaceutical Corporation, for support of his research in the organic synthesis of new local anesthetics.

Bioferm President Lectures

George Gelman, president of Bioferm Corporation, a subsidiary of International Minerals and Chemical Corporation, was regents' lecturer at the University of California for two weeks this fall. Mr. Gelman holds a bachelor's degree in bacteriology, a master's degree in business administration, and a doctor's degree in law.

Dr. Koelle Honored

Dr. George B. Koelle, chairman of the department of pharmacology of the Schools of Medicine, University of Pennsylvania, recently received the annual Alumni Award of the Philadelphia College of Pharmacy and Science, for his work in behalf of the association.

Dr. Firmenich And Geneva Representative Visit U.S.

Dr. George Firmenich, director of development and production of the flavor division of Firmenich International, and Ernesto Ventos, Spanish representative for Firmenich et Cie., Geneva, have been visiting Firmenich in this country.

DR. GEORGE FIRMENICH

Expansions, New Plants and Acquisitions . . .

Pfizer Expands

Chas. Pfizer and Company, Inc., has signed an agreement for the acquisition of the outstanding capital stock of Thomas Leeming and Company, Inc., and the assets of Pacquin, Inc. The Leeming and Pacquin businesses will be operated on a decentralized basis as wholly-owned subsidiaries of Pfizer. Edward B. Austin, board chairman and president of Leeming and Pacquin, continues as board chairman of the subsidiaries, and Thomas M. Cooney, formerly assistant to the president of Pfizer, joins the subsidiaries as executive vice-president.

Pfizer has also acquired New England Lime Company with operations at Adams and Caanan, Connecticut, for 313,000 shares of Pfizer common stock.

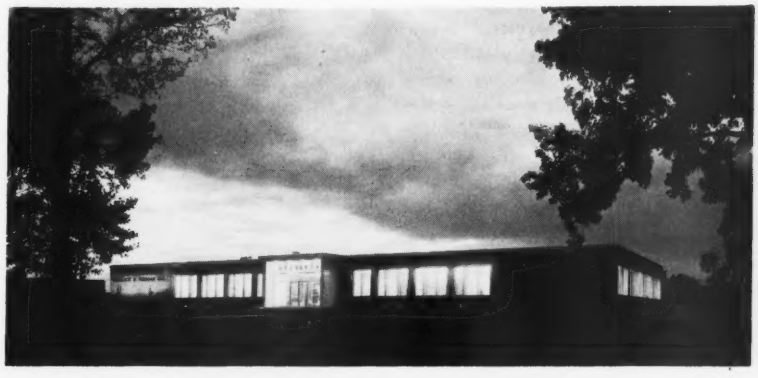
Stepan Builds and Signs Contract

Stepan Chemical Company will build a seven million dollar phthalic anhydride plant on the south coast of Puerto Rico, and has signed a contract to purchase naphthalene from a new plant to be built by Commonwealth Oil Refining Company, Inc. Production of phthalic anhydride, mostly for captive use, is scheduled to begin in late 1962. The German Von Heyden process for production of phthalic anhydride will be used under license from the Chemiebau Dr. A. Zieren GMBH of Cologne, Germany. The company has also established a new plant at Commerce, California, for the production of sufracants.

Shulton Acquires Aerosol Corporation

The board of directors of both companies have approved the proposal for Shulton, Inc., to acquire all the assets of Aerosol Corporation of America, for 30,769 shares of

Five-laboratory center of the Lucidol Division of Wallace and Tiernan, Inc., has facilities for analytical research, applications research, new products research, product and process development, technical services and quality control.



Shulton common stock. The transaction is subject to the approval of the stockholders of Aerosol.

The new offices and plant of McNeil Laboratories, Inc., at Fort Washington., Penna., are composed of three separate buildings, containing administration, research and manufacturing facilities. The architect, Vincent G. Kling Faia, won the silver medal of the Pennsylvania Society of Architects, for the outstanding design of 1961.

Parker Purchase

Drug Specialties, Inc., has been purchased by the A. J. Parker Company. H. W. Barber, Jr., has been appointed president of Hart Laboratories, Inc., the subsidiary of Parker which will market Drug Specialties' products.

Dow Builds Laboratory

Construction is under way on a new building for the Chemical Physics Research Laboratory in the research center of the Dow Chemical Company in Midland, Michigan. Completion of the structure, which will include 20 major laboratory and development areas, is scheduled for summer, 1962.

Clairol Research Laboratory

Clairol, Inc., has opened a new haircoloring research laboratory, at Stamford, Connecticut, with four laboratory divisions, a complete test production line, a chemical library, and facilities for pure research in biochemistry, biophysics and organic chemistry, and quality control.

Using a special light chamber that recreates sunlight in the laboratory, two technicians examine hair swatches to determine true color values of dyes used on human hair at the new Clairol research laboratory.

Company News . . .

Sule Inc.

A new perfume and cosmetic company, Sule, Inc., will market Ingenue, a cologne for the young woman in her twenties, and Belle Teinte, a so-called vitamin. Paul F. Sullivan is president, with offices at 1819 8th Avenue, Seattle 1, Wash.

New Gifford-Wood Agents

The Herring Machine Company has been appointed general sales agent for the conveyor division, and the C. C. Day Company has been appointed general sales agent for the Eppenbach Division, of Gifford-Wood, Inc.

Cameo Cosmetics

A new cosmetic firm, Cameo Cosmetics, Inc., specializing in the production and door-to-door distribution of cosmetics and toiletries for the Negro woman, and colored people all over the world with variegated nuances of pigmentation, is located at 708 St. Nicholas Avenue, New York City. Franklin H. Cooper, a member of the Society of Cosmetic Chemists, has developed a liquid foundation that contains no red, and will not turn orange.

New Distributor

Nate Groom is president of Fairfield Laboratories, Inc., a company organized to distribute professional brand proprietary drugs and other products. Distribution is being completed in Southern California for the first two products, five-grain U.S.P. aspirin in bottles of 100 tablets, and soluble ¼ grain U.S.P. saccharin in bottles of 1,000 tablets. Products will sell at reduced prices.

New Pharmaceutical Firm

Helmut Raiser is president of a new firm, FBA Pharmaceuticals, Inc., that will develop, manufacture, and market ethical pharmaceutical specialties, and operate as an autonomous unit of Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany. Offices are at 120 East 56th Street, New York City.

Ungerer Signs Contract

Ungerer and Company, Inc., have signed a three-year contract with Sunkist Growers, to represent Exchange Brand lemon and orange oils in the United States and Canada.

Colgate Grant

The Colgate-Palmolive Company

(*Continued on page 755*)

Shown at the October meeting of the Cosmetics Industry Buyers and Suppliers Association in New York City are, left to right: Walter Norton, Hazel Atlas Glass, CIBS luncheon chairman; Norman Chadwick, vice-president Avon Products, guest speaker; Robert C. Ring, Duveen Soap, CIBS president; J. William Voit, George Leuders & Company, CIBS 1st vice-president.

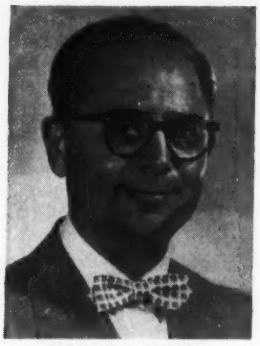
has awarded a $30,000 grant to the International Association for Dental Research, to support the Second International Conference on Oral Biology, a four-day symposium scheduled to take place at Bonn, Germany, in July, 1962.

New Hercules Distributor

Plastics Materials and Polymers, Inc., have been appointed distributors for Hercules Powder Co.'s Profax polypropylene molding powders.

New West Coast Cosmetic Firm

Donald A. Breyer, former president of Anatole Robbins, Inc., is



DONALD A. BREYER

president of a new firm, International Cosmetics, Inc., which has acquired Maromay, Inc., distributors of Bal de Tete fragrance.

Pfizer Award of Merit

Nine persons were honored at the 10th annual conference of the U.S. Civil Defense Council for their contribution to medical health and disaster preparedness, and presented the Pfizer Award of Merit, sponsored by Pfizer Laboratories.

Managers of Endo Laboratories at the 1961 Endo Managers Meeting at the Waldorf Astoria Hotel.

Fragrance Foundation Agency

Annette Green Associates has been appointed promotion agency for The Fragrance Foundation, an organization formed to further the use and understanding of all fragrances by American men and women.

Lederle Awards

Awards totalling $250,000 will be made for the ninth consecutive year to outstanding members of medical school faculties in the United States, Canada and Puerto Rico, under the Lederle Medical Faculty Awards Program, sponsored by Lederle.

Chicago Mounting Changes Name And Moves

Chicago Mounting and Finishing Company, specialists in point-of-purchase advertising materials for the pharmaceutical industry, has changed its name to the Chicago Display Finishing Company, and has moved to a new plant at Melrose Park, Illinois.

New Research Firm

Structure-Activity Research, Inc., Oxford, Mississippi, is a research organization offering research and development services, technical services, consultation, and literature surveys for the chemical-medicinal industry. Working in cooperation with the University of Mississippi, the firm is equipped with laboratories for experimentation, a large stock of organic intermediates, and a library with abstracting services.

New Locations

Natone Company has moved their main offices and manufacturing plant to a modern building at 2525 Main Street, Santa Monica, Calif. . . . **Abbott Laboratories'** Philadelphia area branch has moved from 650 East Erie Avenue, Philadelphia, to a new building at 840 First Avenue, King of Prussia, Penna., near the Valley Forge interchange of the Pennsylvania Turnpike.

Financial News . . .

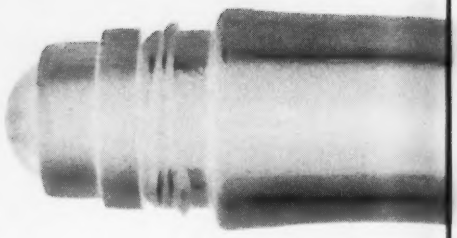
Warner-Lambert Pharmaceutical Company sales for the quarter ended September 30 were $53,292,000 in 1961, compared with $51,157,000 in 1960, while corresponding net incomes were $4,735,000 and $4,381,000, respectively. For the first nine months, sales were $151,286,000 in 1961 and $148,431,000 in 1960; net incomes were $12,294,000 and $11,847,000.

Consolidated net sales for **Merck & Co., Inc.,** for the three months ended September 30 were $57,648,000 in 1961 and $55,730,000 in 1960, while for the first three quarters of the year, sales were $170,434,000 and $167,146,000 in 1961 and 1960, respectively. Corresponding net incomes were $6,941,000 and $7,048,000 for the third quarters of 1961 and 1960 and $19,310,000 and $21,832,000 for the first three quarters of 1961 and 1960.

Smith Kline & French Laboratories for the first nine months of 1961 reported sales of $116,240,000 and net earnings of $21,100,000, compared with sales of $109,158,000 and earnings of $18,461,000 for the same period of 1960.

Revlon, Inc., net sales in the first nine months of 1961 were $104,527,000, as compared with $95,025,000 in the corresponding period in the preceding year, while net earnings were $8,244,000 and $7,801,000, respectively.

Lanolin Plus, Inc., sales for the quarter ended September 30, 1961 were $4,549,000, with earnings of $118,000, compared with sales of $3,356,000 and earnings of $131,000 in the same period of 1960.



For more than 40 years we've been supplying the finest quality White Oils and Petrolatums for cosmetics, hair grooming and baby care preparations and pharmaceuticals. Now these products are available under a series of new names. You'll want to get acquainted with them. Call your nearby American Oil office for additional data.

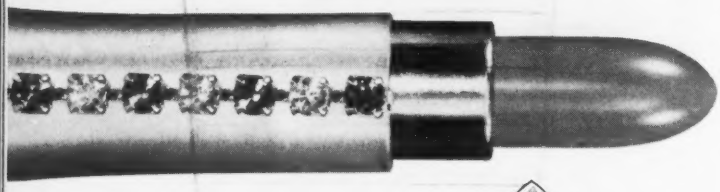
Get acquainted with these new White Oil and Petrolatum names

WHITE OILS

AMERICAN® White Oils No. 18–, 21–, 31–, and 35–USP
AMERICAN® White Oils No. 9–, 10–, 13–NF
AMERICAN® White Oils 5–, 7–, 8–, 9–, 14–T.

PETROLATUMS

AMOJELL®—Alba, Snow White L, White Soft L, Snow White, Lily White, Cream White, Light Amber L, Golden Topaz, Topaz, Amber, Red Veterinary and Dark.



AMERICAN

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Association News . . .

Left to right: Herbert C. Buchanan, IFF export manager, Far East division; M. Taketsuru, president, Nikka Company, Ltd.; A. L. van Ameringen, chairman of the board, IFF; Rene Rickart, president, Oppenheimer & Cie., Ltd. Mr. van Ameringen, visiting Japan, met with industry leaders at a reception given in his honor.

Fragrance Foundation Luncheon

Mary Biddle, Alexandra Danilova, Arlene Francis, Hermione Gingold, Eleanor Steber, and Pauline Trigère were honored by The Fragrance Foundation at a Thanksgiving luncheon, as representatives of the women of the world.

DCAT Chairmen

Committee chairmen for the Drug, Chemical and Allied Trades Association, 1961-1962, are: James Day, Dow Chemical Company, advisory council, nominating; Paul J. Cardinal, Hoffmann-LaRoche, Inc., finance; Charles F. Hagan, Chas. Pfizer and Company, Inc., legislative; Barclay E. Mackinnon, NYQ Chemical Division, S. B. Penick & Company, membership; Arthur C. Emelin, Wallerstein Company Division, Baxter Laboratories, membership service; Floyd K. Thayer, Abbott Laboratories, national council of area representatives; Herman M. Schulman, Washine Chemical Corporation, operation report; Lloyd I. Volckening, Ivers-Lee Company, planning; Paul Klemtner, Paul Klemtner and Company, Inc., public relations; John G. Trtisch, E. I. duPont de Nemours and Company, Inc., tariff; Griffin Crafts, J. W. Wilson Glass Company, Inc., time and place; L. G. Cannella, Continental Can Company, fall luncheon; Paul J. Cardinal, Hoffmann - LaRoche, Inc., annual dinner and symposium; and Roland J. Dahl, E. R. Squibb and Sons Division, Olin Mathieson Chemical Corp., annual meeting.

New NWDA Officers

William W. Walker, general manager of the Walker Drug Company, has been elected president of the National Wholesale Druggists' Association. Walter N. Kuntz, Jr., executive vice-president of the Southwestern Drug Corporation, has been elected chairman of the board.

Citizens Committee Officer

J. I. Poses, president, Parfums D'Orsay, will represent the toilet goods industry on the Citizens Committee, organized to study the operation of the Food and Drug Administration. The committee will concern itself with the administration of the law, and not with future legislation.

McNey Addresses ACA

Harry W. McNey, executive vice-president of McNeil Laboratories, has recently addressed the annual convention of the American College of Apothecaries, discussing marketing developments in the pharmaceutical field.

TGA Convention Location Policy

The Toilet Goods Association, Inc., has decided to hold all future conventions out of New York City, but to continue all meetings of the Scientific Section in New York City.

Controllers Meeting

Arthur L. Boschen, vice-president, finance, Richardson-Merrell, Inc., and president of the Controllers Institute of America, presided over the organization's annual conference in November. The controller's roll in establishing advertising budgets and their subsequent control, was discussed at a drug and cosmetics industry round table.

SAMA Awards

The Student American Medical Association Medical Arts Award Program, for medical illustration and medical photography, sponsored by Eaton Laboratories Division of The Norwich Pharmacl Company, is now open for entries from medical students, interns and residents. Entries will be accepted until February 15, 1962. Cash award will be given to the three best entries. For information, contact the SAMA, 430 North Michigan Avenue, Chicago 11, Ill.

Frank Falchek, second from right, past president of the Pennsylvania Pharmaceutical Association, accepts the Squibb Presidents Award for outstanding performance as president of a state pharmaceutical association from Bill Garrity, Squibb's Philadelphia regional sales manager, at the recent convention of the association. Mike Hornyak, Squibb division manager, and Paul Swain, president of Luzerne Pharmaceutical Association, look on.

AFPE Campaign

The American Foundation for Pharmaceutical Education has opened its 1962 solicitation campaign. In the past, AFPE has provided over a quarter of a million dollars annually to support undergraduate and graduate students in pharmacy and pharmacy student recruitment programs. The Foundation also supports the American Journal of Pharmaceutical Education, The American Council on Pharmaceutical Education, and annual seminars for pharmacy teachers.

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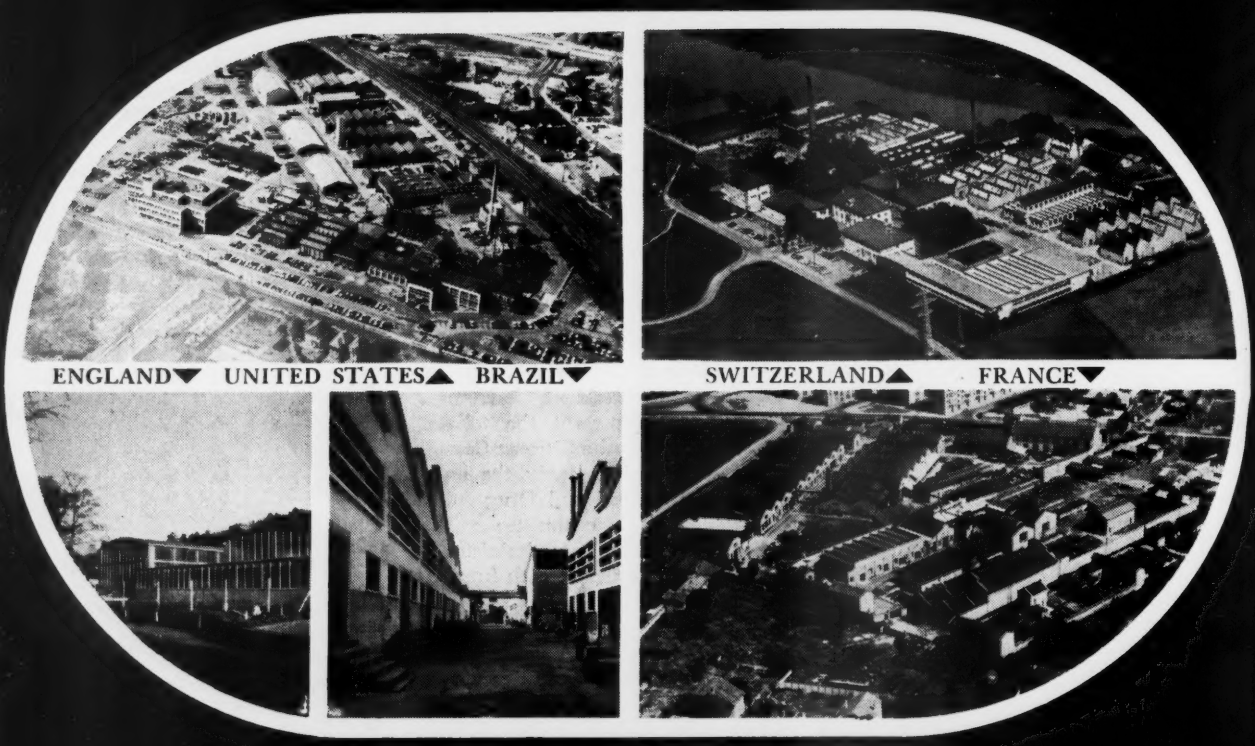

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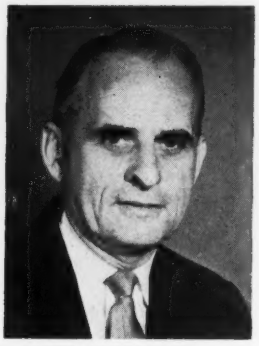
Appointments and Promotions. . .

Bernard A. Fuchs, assistant to the president for the past nine years, has been elected vice-president, administration, of the U.S. Vitamin and Pharmaceutical Corporation.



BERNARD A. FUCHS

Mr. Fuchs was vice-president and account executive with Murray Breese Associates, before joining U.S. Vitamin in 1941.

G. D. Searle and Company has appointed **Daniel C. Searle,** president of Searle Chemicals, Inc., a subsidiary, as vice-president and secretary of the parent company. Mr. Searle is the great-grandson of Gideon Daniel Searle, the pharmacist who started the company in 1888.

The Arthur Colton Company has appointed **F. D. Wooten,** formerly regional sales coordinator in the Detroit sales office, as Chicago

F. D. WOOTEN

branch manager. Before joining Colton in 1959, Mr. Wooten was sales engineer for Air Reduction Sales Company.

Witco Chemical Company, Inc., has elected **Stanley M. Freeman** to the company's board of directors. Mr Freeman is president of Greentree Electronics Corporation.

James M. Fulton, formerly counsel to Merck Sharp and Dohme International, has been appointed general counsel of Merck and Company.

Dr. Aimison Jonnard, manager of market research and development, succeeds **Robert L. Mitchell** as vice-president, planning, of the Celanese Chemical Company. Mr. Mitchell was recently appointed a vice-president of Celanese International Corporation.

David Benjamin, director of purchasing and assistant to the president, is now vice-president, manufacturing, of Aerosol Techniques,

DAVID BENJAMIN

Inc. Mr. Benjamin will direct the operations of the company's main plant at Bridgeport, Connecticut.

Donald H. Brewer and **Ralph M. Knight,** vice-presidents of Rexall Drug and Chemical Company, have been elected to the company's board of directors.

Robinson Laboratory, Inc., has appointed **J. W. Parker** as vice-president, marketing. Mr. Parker, a licensed pharmacist, has been with Rexall Drug and Chemical Company for the past 12 years.

J. Sinclair Armstrong, executive vice-president of the United States Trust Company of New York, is now a director of H. Kohnstamm and Company, Inc. During the previous administration, Mr. Armstrong served as chairman of the Securities and Exchange Commis-

PARKER SCHWAMB

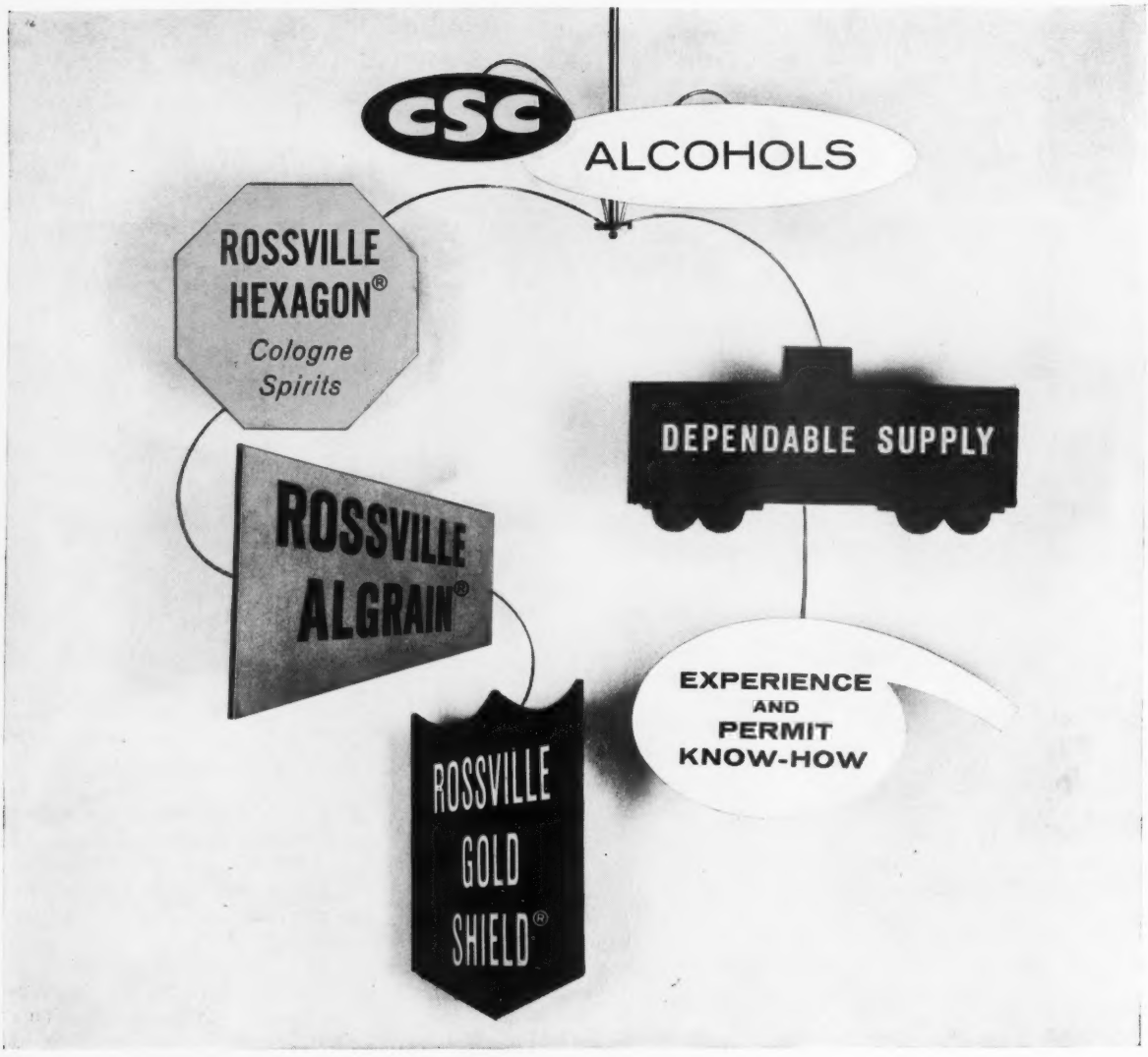
sion, Assistant Secretary of the Navy for Financial Management, and Controller of the Navy. **Parker Schwamb** is now Northern California sales representative.

The Colgate-Palmolive Company has elected **Vincent D. Donahue** vice-president, finance. Before joining the company, Mr. Donahue was comptroller of Continental Can Company.

The Squibb Institute for Medical Research of the Squibb Division of Olin Mathieson Chemical Corporation has appointed **Dr. Cloy B. Knodt** as research supervisor for nutrition in the biological chemistry

CLOY B. KNODT

section. Dr. Knodt has served as research associate at the University of Minnesota, as assistant professor of animal husbandry at Cornell



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CSC also supplies more than 50 authorized specially denatured alcohol formulations and the proprietary solvents, Shellacol®, Quakersol® and Quixol®, as well as Fotocol®, a special industrial solvent.

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University, and as professor of dairy husbandry at Pennsylvania State University.

Dr. Albert M. Mattocks, now director of technical services for the R. P. Scherer Corporation, was previously professor of pharmacy at the University of Michigan, and prior to 1953, was manager of pharmaceutical development at McNeil Laboratories.

ALBERT M. MATTOCKS

Harold R. Reames, Ph.D., M.D. has been appointed vice-president and director of medical and research operations for Lloyd Brothers, Inc. Dr. Reames was formerly manager of infectious disease research for the Upjohn Company and was in private practice.

William C. Potter, in the food industry for ten years, is now branch manager of the Minneapolis office of Fritzsche Brothers, Inc.

Charles A. Oclassen, now president of Westwood Pharmaceuticals, division of Foster-Milburn Company, continues as research director and vice-president of Foster-Milburn. **Willard A. Searle** is vice-president, advertising and promotion, for Westwood, and **Raymond R. Johnson** is vice-president, sales. **Jerome Schimmel, Ph.D.,** has been appointed director of clinical research, and **Karson J. Master, Ph.D.,** formerly with Richardson-Merrell research laboratories, is now assistant to the research director.

CHARLES A. OCLASSEN

Glenbrook Laboratories, division of Sterling Drug, Inc., has promoted **J. D. Buckingham,** a sales assistant, to assistant to the executive vice-president.

Dr. John Rebar, Jr., for the past five years a research biochemist in the Miles Pharmacy Research Laboratory and section head of diagnostics development, is now associate research director in the medical department of Miles Products, division of Miles Laboratories, Inc.

John H. Breck, Inc., has appointed **John G. Jennings,** formerly vice-president of marketing for Noreen, Inc., to the newly created position of director of market research and new products coordination.

JOHN G. JENNINGS

Union Carbide Chemicals Company has promoted **Arnold T. Anderson,** formerly manager of the Niagra Falls plant, to product manager, water soluble chemicals, in the new chemicals group.

Mallinckrodt Chemical Works has promoted **Earl W. Johanning** to regional sales manager for medicinal chemicals in the St. Louis region. Mr. Johanning was district supervisor of pharmaceutical sales in Dallas. **Wayne E. Luff,** formerly in the pharmaceutical sales section, has been transferred to the medicinal chemicals sales section. Mr. Luff will serve as a regional representative for Detroit and Cleveland.

Dr. Richard T. Arnold, formerly vice-president, research and development, and director of the Mead Johnson Research Center, has been appointed president of the Center. **C. Joseph Genster,** who was vice-president, marketing of the Edward Dalton Company, division of Mead Johnson and Company, is now president of Dalton.

RICHARD T. ARNOLD

Dr. Franklin E. Roth has been promoted to manager of Schering Corporation's department of general pharmacology. Dr. Roth joined Schering in 1953 after receiving a doctorate in pharmacology and physiology from the University of Minnesota. **Carrol H. Weiss** has been appointed research media advisor for the medical research division of Schering. Since 1956, Mr. Weiss has been a medical writer in clinical research.

Blaine Crouch is now manager of the Chicago office of Verona Aromatics. Mr. Crouch has been in the aromatics industry for 13 years.

BLAINE CROUCH

Richardson-Merrell, Inc., has appointed **H. Robert Marschalk,** formerly executive vice-president, president of the firm and a member of the board of directors. **Smith Richardson,** president for the last four years, has been elected chairman of the board and the executive personnel committee. **E. L. Mabry,** former board chairman, is now chairman of the executive committee. **Arthur C. Greber,** vice-president of Clopay Corporation before joining Merrell in 1960, has been elected a vice-president of the company and manager of the company's manufacturing services. **Edward P. Anderson,** senior vice-president, has been elected to the board of directors.

H. ROBERT MARSCHALK

Richard K. Van Nostrand has been elected vice-president and general manager of the newly formed proprietaries and specialties division of Chesebrough-Pond's, Inc. Before joining the company, Mr. Van Nostrand was assistant vice-president and new product group supervisor for Bristol-Myers Company.

RICHARD K. VAN NOSTRAND

The Pitman-Moore Company has appointed **Kenneth O. Montgomery,** a chemist in the pharmaceutical control department, as chief chemist in the pharmaceutical quality control department. **Sampson F. Jeffries** is now manager of the product development laboratories.

Douglas S. Banwell, formerly with Imco Container, Ltd., and Armstrong Cork, Ltd., is now sales representative for the flavor division of International Flavors and Fragrances, Ltd.

DOUGLAS S. BANWELL

Dr. Edgar Schipper, former senior research chemist with William H. Rorer Company, is now organic chemist in synthetic medicinals at Shulton. **Judith Zweig,** a member of the American Institute of Physics, is now control chemist. **Leonard Waldt,** formerly chief food chemist at Morningstar-Paisley, Inc., is now senior food technologist in the fine chemicals research laboratory, and **Josephine Milstone,** now a chemist with Shulton, was a chemist in the cosmetic laboratory of International Flavors and Fragrances, Inc.

Bernard Balona, Gordon F. Bird, Joseph P. Canniff, Martin J. Goodman, F. Dale Hansen, Douglas S. Lauder, Anthony Loupos, Jr., Lee C. Moses, and **Willis J. Washam** are new sales representatives for McNeil Laboratories, Inc.

Benjamin L. Raimondi, formerly with the Eversharp-Schick Razor division, is now sales representative for Bourjois, Inc., in the New Jersey area.

Gene Hunnicutt, sales supervisor for the Dallas area, is now sales manager for that area for the Alberto-Culver Company. **Robert Padgett,** formerly a territorial salesman, succeeds Mr. Hunnicutt.

Dr. Edgar N. Petzold, recently made manager of the biochemistry department of Dr. Salsbury's Laboratories, was previously in the research division of the Grain Processing Corporation.

Dr. Walter H. Hoskins, director of the newly created department of scientific affairs of Chemway Corporation, will direct all research, product development and quality control.

WALTER H. HOSKINS

Wyman Guin, formerly vice-president of marketing for Lakeside Laboratories, is now in charge of advertising and product promotion for Haug Drug Company.

Obituaries . . . .

J. W. Dargavel

Dr. John W. Dargavel, secretary, executive secretary and general manager of the National Association of Retail Druggists since 1933, died suddenly in October. Dr. Dargavel, a national leader of the drug industry and a prominent authority on drug store distribution, was elected president of the N.A.R.D. in 1931, and in 1932 was elected chairman of the board. Dr. Dargavel, a staunch supporter of stabilized prices through fair trade, was editorial director of the N.A.R.D. Journal.

J. P. Gray

Dr. Jacques P. Gray, director of special medical services for Parke, Davis and Company since 1947, died October 13th in Detroit. Prior to joining Parke-Davis, Dr. Gray was dean and professor of public health medicine at the University of Oklahoma School of Medicine.

CARBOPOL COSMETICS

(*Continued from page 720*)

		By weight
A	Mineral oil	95.7
	Lanolin	4.2
	Stearic acid	143
B	Water	719
	Carbopol 934	5.0
	Triethanolamine	28.8
	Ethomeen C-25	5.0
	Perfume	q.s.

Procedure: Form B by carefully dispersing the Carbopol 934 in the water and then adding the triethanolamine and Ethomeen C-25. Heat both A and B to 75°C and add A to B with vigorous agitation. Mix this to uniformity and then cool it rapidly to 30°C. Add perfume when the temperature is about 50°C.

An excellent cream was prepared in this fashion that worked well in giving a close, comfortable shave. It retained its moisture well during shaving. It had a *p*H of 7.0 and a viscosity of about 35,000 cps (Brookfield, 20 rpm). The Carbopol 934-amine salt promotes smoother emulsions and offers the possibility of preparing such emulsions by inexpensive low-shear mixing.

The formulation can be modified by addition of glycols to improve face-feel and reduce razor drag.

Cold Waving Lotions

Thioglycolic acid is the active ingredient in both home and professional cold waving lotions; such lotions are usually more appealing when slightly thickened. Small amounts of Carbopol 941 offer complete control of the consistency of thioglycolate solutions as the following recipes show:

	By weight			
	1	2	3	4
Water	90	90	90	90
Carbopol 941	0.5	1.0	1.5	2.0
Thioglycolic acid (69%)	7.8	7.8	7.8	7.8
Ammonium hydroxide (28% NH_3)	9	9	9	9

Procedure: Carefully disperse the Carbopol 941 in the water and add the ammonium hydroxide. Lastly, add the thioglycolic acid and blend the mix to uniformity.

These clear mixes exhibited the following characteristics:

	1	2	3	4
*p*H	9.0	9.1	9.2	9.1
Viscosity (Brookfield, 20 rpm) cps	180	2000	6160	10,600

In practice, the consumer appeal of a highly viscous lotion must be balanced against the necessity for complete saturation of wound tresses and hair shaft penetration by the solution. If the solution is too viscous, waving action will be sacrificed even though thickened solutions stay on the hair better.

The above thickened solutions dilute readily with water. Because of this, no difficulty is anticipated in completely removing the solutions from the hair by rinsing with water.

Waterless Hand Cleaner

Effective and inexpensive waterless hand cleaners can be manufactured using only 0.5 per cent Carbopol 934 as a primary emulsifier. The following is a good basic formula which can be altered to meet the necessary requirements:

	By weight
Water	50.0
Carbopol 934	0.5
Sodium hydroxide (10% solution)	1.0
Nonic 218 (Nonionic detergent)[1]	3.0
Ethomeen C-25	0.5
Odorless solvent	38.0
Mineral oil	10.0
Perfume as desired	

Procedure: Carefully disperse the Carbopol 934 in the water. When the dispersion is thin and lump-free, add the sodium hydroxide, Ethomeen C-25 and nonionic detergent in that order. The mix will thicken to a gel. Add the mineral oil-solvent blend to this with good agitation. This formulation yielded a hand cream of 108,000 cps (Brookfield, 20 rpm) viscosity at a *p*H of 6.1.

There are many possible variations of this formulation. Mineral spirits, deodorized kerosene or low viscosity mineral oil are useful and effective solvent systems. With most solvents, it is advisable to use an emollient to prevent whitening and chapping of the skin. In the foregoing, mineral oil at ten per cent of the solvent system is useful. Other useful emollients are isopropyl palmitate and lower levels of glycerine or lanolin.

The Nonic 218 is useful for its detergent action but is not necessary for any emulsifying action in the formulation. Carbopol 941 can be substituted for Carbopol 934 to yield a less viscous, though completely stable and effective cleaner. The *p*H is relatively unimportant from a stability standpoint and can be raised or lowered between six and ten by adjusting the amount of sodium hydroxide. Pumice, or other abrasive, can be added for scouring action.

Cream Lotion Shampoo

The consumer appeal of shampoos is very often enhanced by merely thickening an otherwise good product. Low levels of Carbopol resins are effective in achieving such thickening and in stabilizing many cream shampoos against separation as illustrated by the following formulation:

	By weight
Ultrawet 60 L[2]	33
Glyceryl monostearate	3
Water	64
Carbopol 934	1
Triethanolamine	1
Perfume	q.s.

(*Continued on page 804*)

[1] Sharples Chemicals Div., Pennsylvania Salt Mfg. Co., 3 Penn Center Plaza, Phila. 2, Pa.
[2] Atlantic Refining Co., 260 South Broad St., Philadelphia, Penn.

NOW... FROM A SINGLE SOURCE

Management Forum

BY FRANCIS CHILSON, Sc.D.
PROFESSIONAL ENGINEER

Projection Charts

In the October, 1948 edition of this magazine, I wrote an article entitled "Why Companies Degenerate," which created quite a stir at the time, but little that I can observe has been done since to eliminate the "seeds of death" that cause corporate degeneration. One of these "seeds" is the lack of long range planning and management accounting. At that time, and unfortunately it bears repeating, I said, "Most companies are loaded with records and still lack vital statistical information so necessary to the conduct of their business. Accountants look backward; statisticians look forward. We have all kinds of accounting information which tells us what we've done after we've done it. But projection curves and trend charts are all but unknown in this industry. It's not where we've been that counts so much, as where we're going." Further, "To make long range plans, five, ten or 20-year plans for the development of all phases of our business, accurate plans based on scientifically sifted date and trend curves, is a management procedure so rarely encountered that it could almost be said to be nonexistent in the drug and cosmetic industries." This is still the case. Proctor and Gamble, so I am told is a notable exception. For years, this outstanding company (particularly outstanding in management procedures) has operated in accord with projection charts which enable the management to predict with astonishing accuracy individual brand performance at least five years in advance of any given year. This enables the management to make provision for fixed and fluid capital requirements, personnel development and other management affairs.

The entire insurance business is based upon projection charts, very long range projection charts, that are so accurate that rates can be based upon them. If it weren't for projection charts based upon accurate statistics and sound mathematical judgment, the insurance companies would be out of business in a very short time. It would take but one or two national disasters to push them to the wall. But the insurance business continues to be one of the most profitable and stable businesses in the country.

It must be admitted that insurance actuaries have a simpler forecasting problem than an industrial forecaster would have, because insurance deals with fewer elements and fewer variables: births, deaths, disease and disasters; and they are able, through coinsurance, to hedge their bets against disasters. But in the drug industry, since we are primarily concerned with disease, one would assume that in forecasting next year's sales, the probable incidence of disease would be taken into account. Next year's sales are, however, usually a "guesstimate" based upon a percentage of last year's sales.

The drug and the cosmetic industries are not alone in their failure to project future performance. Most industries fail to anticipate performance for more than a year ahead. It is a common fallacy that if sales and profits are better this year than they were last, performance has been good; whereas taking into account the external economic influences that affect this industry, the performance this year may have been damn bad in spite of its being ahead of the previous year.

It is my persistent belief that what we've done doesn't matter a damn; it is what we should do, and must do, in the future that really counts. I was therefore keenly interested in the article published by the *Wall Street Journal* on October 25th, "More Companies Peer Into The Distant Future, Try To Prepare For It." The article reports that many large corporations in diverse fields are trying to forecast performance five, ten and even 20 years into the future. These firms include such giants as General Electric, General Mills, DuPont, US Steel, IBM, American Machine and Foundry and many others. Already the Institute of Management Sciences has a College of Long Range Planning, set up three years ago, in fact. Top management, it is pointed out, has no time to keep abreast of the swift, multifarious

technological changes that are constantly taking place and which will have very important influences on their business. So deeply has General Mills delved into future planning that D. F. Wright, vice-president of General Mills, predicts with confidence, "By 1966 we expect to have of our gross investment, nine per cent of our sales and 18 per cent of our net profits in entirely new products *which will have been developed and introduced between now and that date.*" Frank T. Cary, who heads up the planning division of IBM says, "If you don't anticipate ahead of time what the critical decisions and policy implementations are going to be, you are going to be second or third or tenth in the race so many times you'll be in real trouble. *If you wait until it's upon you, you are too late.*"

Says the Journal, "A typical plan will not only specify immediate action but a series of future moves: which factories must be started in 1964; what the "skill mix" of a company's employees will be in 1966, and the types of research which must be started or cut back." All of the companies investigated have full time planning groups, usually of vice-presidential rank, who devote themselves entirely to future planning.

Some opponents of long range planning say that future conditions are too often influenced by unpredictable external events such as wars and other crises and they have a tendency to regard a long range plan as a form of straightjacket. I suspect that in most of these cases such individuals are infected with a disease that is more common than the common cold, namely, inertia. It is damn hard to think logically and still harder to think imaginatively. Thinking is work and most of us don't like work especially when affairs are moving along smoothly.

To establish long range projection charts requires a mathematical and statistical capacity which the majority of firms do not have within their organizations, but this deficiency need not prevent a start in the right direction. If one did no more than to project the growth of his company as a straight line between current sales and what he would like those sales to be in 1970, he would have something against which to measure annual sales against performance. Every financial statement should have three columns: last year's figures; this year's figures; per cent of projected performance.

To do the job more accurately, yet simply, requires delving into past figures for five or ten years and relating them year by year with total industry sales or profits (preferably the latter) and population growth. This will do for a starter. Let us suppose that in a given instance your company's sales or profits are one per cent of the industry's total and that for the period under study they have remained constant. Obviously your firm is holding its own. If your percentage is less, your firm is falling behind the procession. On the assumption that you are satisfied with past progress you can project these figures forward for ten years as a starter. Of course no actuary or statistician would accept anything so simple. He would want to know the percapita consumption of drugs, the incidence of disease, the changes in the age groups of the population, national income and many other indices.

I once asked a friend of mine, a mathematician, if he thought that given accurate statistical information, he could predict the future growth of a particular company, operating in an industry that is influenced by such variables as legislation, epidemics, wars, population changes, product changes, and research discoveries. His answer was, that if the company had been established long enough in the industry and if it had accurate and adequate statistical information, a very accurate projection could be made. But there's the rub. Most companies do not have accurate and adequate statistical information, either present or past. I think it is better to make the projection curve on the basis of per capita consumption of drugs and refine the projection year by year as more detailed and accurate figures become available. Of one thing I am sure: the most empirical projection chart is a damned sight better guide than the sales forecasts made by most marketing departments even for one year!

Geratrics

Since 1950, the aged population has increased 35 per cent while the general population has increased only 19 per cent. Hence today we have 17 million people over 65. In 1980 it is anticipated we shall have a population of old people amounting to 25 million. This means that the geriatrics part of our business will continue in a thriving state, and this number of old people offers a marvelous opportunity for anyone who develops an aphrodisiac. A lot of work is being done on contraceptives for the use of young people and it is only fair that the aged should be provided with something to help overcome what some psychologists call "retirement neurosis."

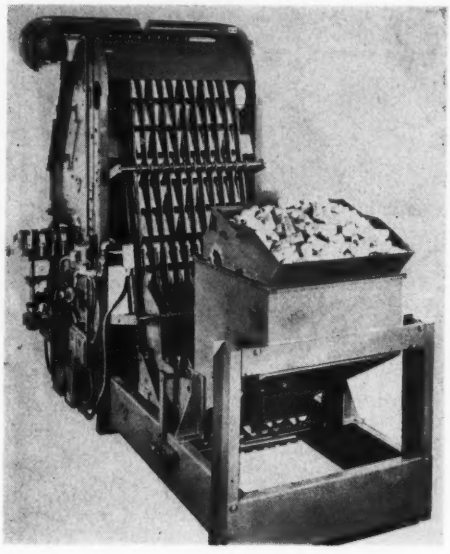
About 60 per cent of the people in the 65 group, according to one authority, have incomes of less than $1,000 a year and assets of less than a thousand, but their medical care requirements are about twice as much as the average below 65. Old people are caught in a vicious inflationary circle. A person who retired in 1948 with an income of $100 a month can today buy $76 worth of food and other necessities. At present, social security is limited to $123 a month at maximum. If this amount is increased to combat inflation, or in other words, rising living costs, such action will increase the inflation it is intended to combat. Likewise medical care for the aged, recommended by the Kennedy administration, will increase inflationary pressures and thus be, to a certain extent, self defeating.

There is nothing we can do for the old people that they themselves will not have to pay for out of increased living costs. The obvious answer is that we

must keep old people producing for longer periods of time, or, alternatively, we must step up the productivity of our economy to a point at least where increased benefits for old people can be paid for out of current revenues without increasing inflation. How can we get this message across to our working people and especially to the unions which are exerting every possible effort to restrict production? How can we make these misled people realize that in only a few short years they too will be in the over-age group, confronted with the same problems that old people are facing now?

Automatic Unscrambler

Automatic plastic bottle unscrambler is hopper fed for high production speeds and can be adjusted



for different sizes and shapes of plastic bottles. A case opener and unloader mechanism can be attached. *ABC packaging Machine Corp., Clearwater, Fla.*

Organic Compounds Index

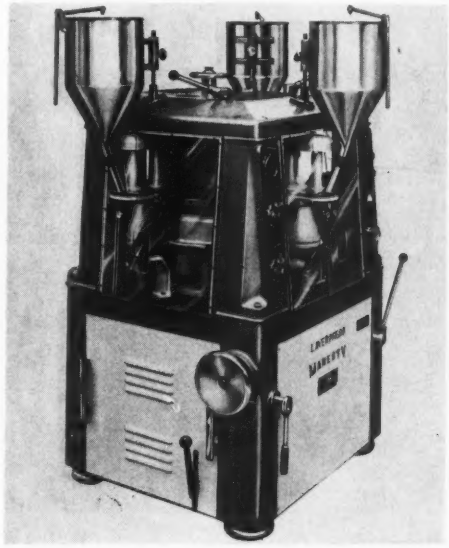
Fritzsche's Codex of Structural Formulas, an electronic reference index of organic compounds, locates organic compounds, either commercially available or in the development stage, by their chemical structures. It furnishes information on some 20,000 compounds grouped in 18 functional categories, and their combinations, in a matter of minutes. *Fritzsche Brothers, Inc., 76 Ninth Avenue, New York City 11.*

Filter Chambers

Full-view filter chambers, for filtering corrosive chemicals, are constructed of transparent, high-temperature lucite, and have filtering capacities of 800 to 1200 gallons per hour. The filtering action and condition of the filter tubes can always be seen through the clear lucite of the L series, 140 degrees F. For higher temperature operation, chambers constructed of epoxy, polypropylene, teflon or PVC may be substituted. *Sethco Manufacturing Corporation, Merrick, N.Y.*

High Speed Press For Tablets

Manesty Company's high-speed press for making multi-layer drug tablets has a production capacity of 1500 tablets per minute. Rotary feeders isolate and



feed individual layer granulations. It is equipped with controls for uniform tablet weight and has an adjustable hydraulic system that provides regulation of pressure for each tablet layer. Quality control checks can be made without interfering with production. *Thomas Engineering Company, Skokie, Ill.*

Environmental Test Unit

Temperature-humidity environmental test unit, for corrosion testing of metals and package testing of drugs, is designed for MIL-E-5272C, MIL-STD-202B and MIL-STD-170 testing and it provides temperatures from 0 degrees to plus 200 degrees F. and relative humidity from 20 per cent to 95 per cent in the dry bulb range, limited only by plus 35 degrees to plus 185 degrees dew point. *Tenney Engineering, Inc., 1090 Springfield Road, Union, N.J.*

Pipe Flanges

Eveco flanges require no welding, are never in contact with corrosive liquids, and need not be prefabricated to pipes. Flange hole alignment and squaring is automatic upon installation and sludge pockets and turbulence are eliminated through flush, free-flow design. *Stamperhanger Company, 1634 Telegraph Avenue, Oakland 12, Calif.*

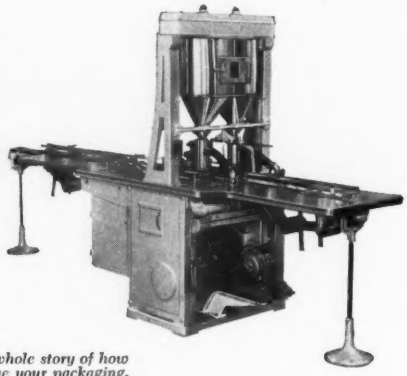
Impregnated Nylon Glove

Impregnated Ambassador Glove, for pharmaceutical, chemical and drug handling, is made from 100

Everything on this table was packaged by Avon with FMC Auger Fillers

Avon Products, Inc. uses a total of 23 FMC Auger Fillers in 4 different plants throughout the United States and Canada. With these machines they fill hard-to-handle powders and talcs in a variety of container types and range of sizes. When the Avon Lady calls, the odds are substantial that everything she spreads out on the coffee table was filled on an FMC Auger Filler.

Six of the FMC machines used by Avon are Duplex Auger Fillers model HG-84. Completely automatic, this model is designed with a choice of filling methods—cam volumetric, gross weighing, or auger combined with vacuum for pack-filling dusty products—at speeds up to 70 containers per minute. Many other models are available for large or small plants, automatic or semi-automatic operation, tight or loose fills, long or short runs to handle almost any powder or granular product and certain pastes. Production run accuracy has proved outstanding in filling cans, jars, boxes, bags, etc. from ½ oz. to 20 lbs. Changeover for product and size is exceptionally fast and simple. Speeds as high as 140 per minute.



For the whole story of how FMC Auger Fillers can improve your packaging, write for Bulletin P-811.

FMC CORPORATION
PACKAGING MACHINERY DIVISION
Stokes & Smith Plant: 4912 Summerdale Avenue, Philadelphia 24, Pa.

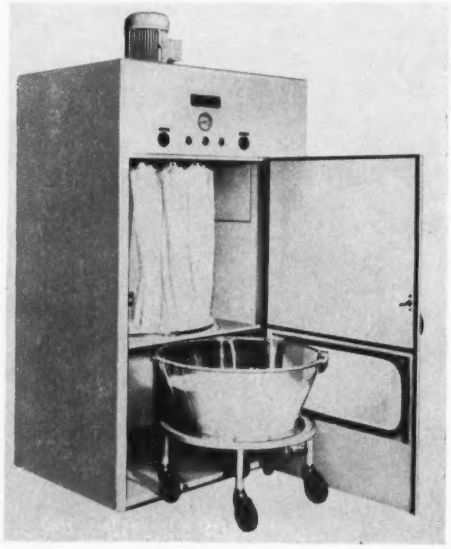
per cent nylon, is completely lint-free, and is impregnated with a new chemical formulation which prevents transference of perspiration through the glove onto work objects. *Standard Glove Company of New Jersey, 109 Frelinghuysen Ave., Newark, N. J.*

Flexographic Type Printer

The Printall type printer prints complete or supplementary copy on bags, cartons, boxes, blister pack cards and sheets of materials up to ½ inch thick, from easily applied quick change rubber plates. A single control automatically governs both printing impression and ink transfer for single or multicolor printing at production rates ranging from 1,000 to 3,000 per hour. Sheet sizes from one inch by six inches to 47 inches by 86 inches can be accommodated with over-all print areas up to 39 inches by 39 inches. *Adolph Gottscho, Inc., Hillside 5, N. J.*

Granular Dryer

Aeromatic, A. G.'s rapid dryer for granular materials takes only 30 minutes to dry most granulars.



It offers complete drying uniformity for hard particles and eliminates color migration by capillary transfer. *The Fitzpatco Company, 1001 West Washington Boulevard, Chicago 7, Ill.*

Roll Wrapping Machine

Redington type 47b3 roll wrapping machine, for mint tablet packaging, feeds mint tablets from the hopper, accumulates 12 tablets face to face, feeds paper backed foil from a web, cuts to length, and then wraps the roll. The long seam of the wrapper is held together with spots of paraffin and the ends of the wrapper are folded with regular folds. Output is 140 packages per minute. *Crompton & Knowles Packaging Corporation, Bellwood, Ill.*

Gas/Liquid Heater

Gas/liquid heater provides uniform heat distribution and low surface temperatures while supplying heat for continuous operation at temperatures up to 600 degrees F., thus preventing carburization of sensitive fluids. The unit has a length of nine to 30 inches with standard wattage ratings from 2500 to 9400 watts using 115 to 230 V. single phase power. *Lytron, Inc., 42 Brookford Street, Cambridge 40, Mass.*

Metalonics Process For Dispenser Cathodes

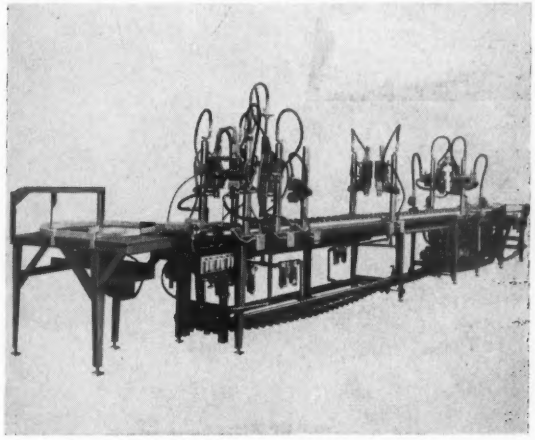
Philips' metalonics process suppresses emission from portions of cathode surfaces and auxiliary electrodes and is useful in generating electron beams of special shapes and preventing electron emission from cathode supports and from auxiliary electrodes which are close to the cathode. Emission from barium-activated dispenser cathodes is reduced by one to three orders of magnitude in the normal operating range of 900 to 1200 degrees centigrade. The surface carburization technique has been successful in generating hollow beams, cathode supports, disc-shaped grids, accelerating anodes, beam focussing and guard electrodes. *Philips Electronic Instruments, 750 South Fulton Avenue, Mt. Vernon, N.Y.*

Drum Lift

One-man hydraulic drum lift is foot operated and has a load capacity of 750 pounds. A drum can be lifted 72 inches from the floor in approximately one minute. *Sterling Fleischman Company. 109 Main Street, Morton, Penna.*

Automatic Aerosol Production Line

Low cost automatic aerosol production line can be used for pilot runs as well as intermediate and quan-



tity production and can be installed in single or double chain, as a straight line or a U-shaped line. Operated by a single master control panel, it can produce up to 90 cans per minute in continuous operation. *Aerosol Machinery Company, 80 Magnolia Avenue, Westbury, N. Y.* •

Right and ready with new tabletting ideas

New Precision in Multi-Layer Tabletting

By pre-compressing each layer, Stokes Multi-Layer Tabletting Presses permit accurate weight and analysis control together with precise, fine-line separation of layers.

Larger Tablets at Higher Speeds

New Stokes presses produce tablets up to 5/8" diameter at production speeds as high as 3800 tablets per minute with depths of fill from 1/8" to 11/16".

The real worth of *any* new tabletting idea can best be evaluated at the business end of a production line. When all is said and done, it's the result in terms of quality and quantity of the tablets produced that matters.

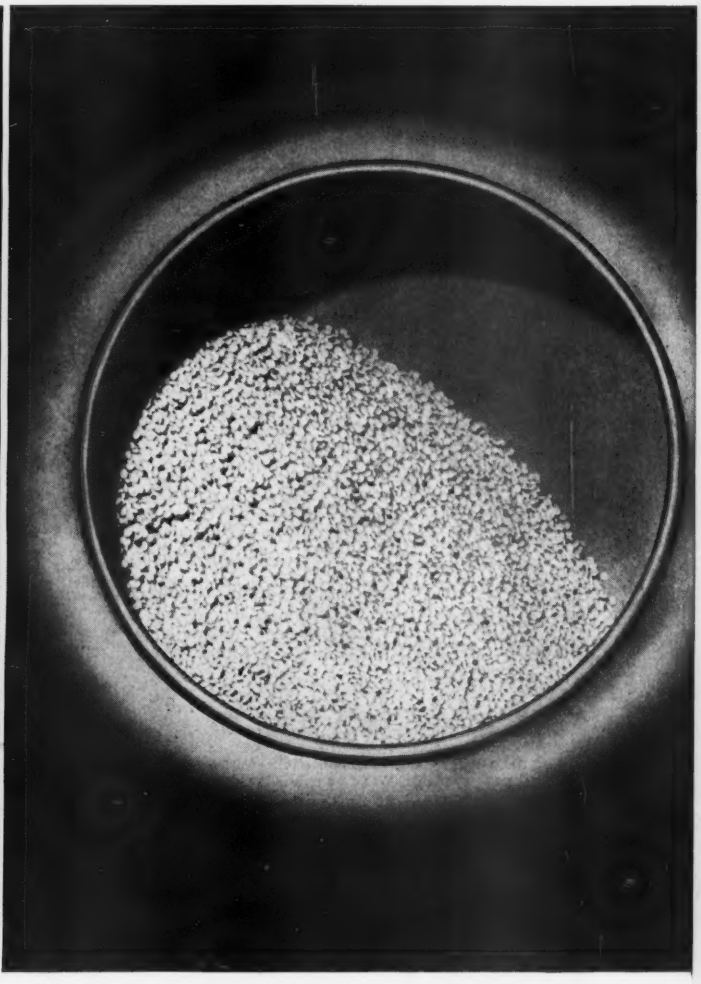
At Stokes, only tabletting ideas that *work . . . work right . . . work every time . . .* are translated into hardware. There's really no secret to this accomplishment. For over 65 years, Stokes has made a policy of working with the industry in developing tabletting equipment . . . in supplying the industry with *proven* tabletting equipment *as it is needed.*

When the industry needed high-speed production equipment for multi-formula tabletting, Stokes was ready with proven multi-layer tabletting presses. When the industry demanded more powerful presses to handle the larger tablets at greater production speeds the necessary equipment was *ready and waiting.*

There is also today's cost problem of tabletting fine-powder formulations at the most economical production speeds with close quality control. Stokes right and ready answer: *Force-Flo Feeding,* which makes it possible to produce finished tablets from fine, dry-blended powder *in a single step . . .* eliminating costly wet mixing, drying, granulating, slugging, and other preparatory steps.

Recognizing the industry's desire for more flexible coating equipment, Stokes introduced the variable-speed coating stand . . . *at no increase in price.*

Stokes will continue to apply its full resources in working with the pharmaceutical industry to determine equipment needs and to fill these needs with proven equipment of highest quality. To put the newest, most tested tabletting machines to work in your plant, contact your nearest Stokes representative. Pharmaceutical Equipment Division, F. J. Stokes Corporation, 5500 Tabor Road, Philadelphia 20, Pa.



Fine Powder to Finished Tablets

New Force-Flo Feeding System (with no moving parts) makes it possible to produce finished tablets from fine, dry-blended powder *in a single operation.*

Greater Coating Flexibility

Stokes offers the dependable performance of proved coating stand design . . . plus the production flexibility of variable-speed drive . . . *at no extra cost.*

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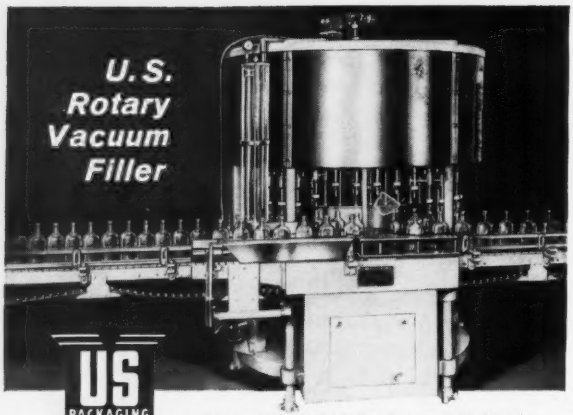


US PACKAGING ENGINEERS

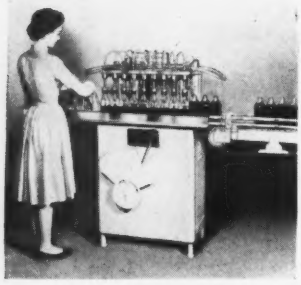
Basic Model NC-45 fills hot or cold liquids into containers up to 3⅜" dia. at 450 p/m

Hundreds in Use

YET, NO TWO ALIKE!

The name, "U. S. Rotary Vacuum Filler" represents a wide line of models rather than an individual machine. These are basic models that vary in capacity from 16 to 45 filling tubes and are designed for implementation with standard adaptations to serve the individual requirements of each user. *No two machines are ever alike.*

Thus, U. S. filler engineering provides both: the efficiency of a custom-built machine and the practicability of standard machine parts. This together with exclusive features provides the lowest filling cost possible. For full details, please write for the "Rotary Filler Bulletin."



Most Versatile Multiple Filler

MODEL B-49 STRAIGHT-LINE VACUUM FILLER. For liquids and semi-liquids. Fills 4 to 9 containers simultaneously. Adjustable for all container heights up to 14". Stainless steel is standard; plastic on order. Discharge conveyor is optional. Write for "Bulletin B-49".

Continuous Filling

MODEL B-2 VACUUM FILLER. Fills 2 containers while 2 filled containers are being removed and 2 empties loaded. Handles containers up to 4¼" dia. up to 13" high. Stainless steel construction. Plastic available. Write for "Bulletin B-2".

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ODOR COMPENSATION

(Continued from page 747)

Recent Work

Some preliminary results of work by the author have already been reported[7] elsewhere; they were concerned with the pair: juniper oil and *n*—butyric acid. This pair has some practical interest because butyric acid is one of the main constituents of sweat and anything that will neutralize its odor effectively might be useful in body anti-odorants. The apparatus used (Fig. 2), was designed to provide two air-streams: one odorized with butyric acid, the other with juniper oil, and to mix the two streams in known proportions so that observations could be made on the odors of known mixtures. Suitable experimental precautions were taken to ensure that the observer never knew whether neither, either, or both of the odorants were present in the air he smelled, so that the results were objective and the responses were given very carefully. It was never possible to reproduce Zwaardemaker's finding of a point of no odor; it was found though that in some mixtures neither of the two components, the juniper oil or the butyric acid, was recognizable; but there was still a quite noticeable soft smell. As regards the range of concentration over which compensation was possible, the results confirmed the view already expressed that compensation can only be so good as to make the component odorants unrecognizable when the odors are weak. The subject is one that requires further investigation and this is in progress.

The Mechanism of Compensation

A series of papers[8, 9, 10, 11], spread over the last few years, has shown conclusively that the primary stimulus for olfaction is one of adsorption. When odorant molecules pass over the olfactory epithelium they are adsorbed on to it and give up energy in the form of heat which stimulates the olfactory nerve. It is not very easy to see how such a process could afford an explanation of odor compensation at the olfactory receptors; it may not be absolutely impossible and the possibility is one that requires further exploration, but *prima facie* it seems unlikely. A more likely explanation is that the compensation occurs centrally, in the nervous system, in the nervous pathways that lead to the cortex of the brain. Some such explanation as this was what was put forward by Zwaardemaker 60 years ago. The possibility that compensation is due to an interference effect, on the theory that odor is due to molecular vibrations, was advanced a long time ago by Dyson,[12] but Wright,[13] although he also supports the view that the olfactory impulse is caused by molecular vibrations, has recently written "The vibrational theory of odor therefore provides no theoretical basis whatever for odor counteraction."

We can only say that so far, no mechanism of odor counteraction has been proved; the likelihood is

that compensation takes place centrally. But it still remains that although we do not know how it comes about, there is no doubt that it does come about, there are countless examples of the workings of nature that we cannot as yet explain, but we do not therefore doubt their existence. Odor compensation is one of them. In the author's experience it can take place at very low intensities of odor, adequately enough to make either of two odors, that would be recognizable separately, unrecognizable together. There is never, again in the author's experience, a condition of no odor, of no olfactory sensation; this is rather at odds with Zwaardemaker's findings, but I believe it to be true. When the commercial application of the principles of odor compensation are considered, problems that arise are those concerned with relative concentrations, with the behavior of counteractants in complex situations, where there is not just a single pair of odorants but probably several odorants in the source of odor offence and several more in the counteractant mixture. It has, also, to be remembered that there are many aerosol air-fresheners, smell-killers and so forth, that are marketed without any claim being made that they function by a process of compensation; some of the best of them are both effective and popular.

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HISTOCHEMICAL ASPECTS OF HUMAN HAIR

(*Continued from page 746*)

data to verify a very interesting suggestion.

Among inorganic substances present in the hair follicle, mention must be made of calcium, found in abundant quantities, potassium, also very abundant, and magnesium, calcium phosphate, and sulfate groups. Braun-Flaco and Rathjens[10] have shown that zinc is present in the outer root sheath, but not in the inner root sheath or the cuticle. Copper is very probably present in the hair follicle, but, so far, no technique sensitive enough to detect this metal has been developed.

The keratinization of human hair is a very complex, and not yet completely elucidated process. Probably the most important aspect of the transformation of the polypeptide chains involves the

important notice to the drug and cosmetic industry

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change of -SH to -S-S- bonds, a process which may be followed by histochemical means. Rothman[11] has suggested that the oxidative transformation of sulfydryl to disulfide bonding is catalyzed by copper, functioning as a co-enzyme.

Spier and van Caneghem[12] have demonstrated that, in the keratogenous zone, there is an increased content of the enzyme, DNA-depolymerase, responsible for the depolymerizing of deoxribonucleic acid, at the same time as the Feulgen for deoxyribonucleic acid becomes negative. Spier and Martin[13] have found that a small amount of 5-nucleotidase is present in the keratogenous zone, but, as yet, we do not know exactly what happens to the decomposition products of the nucleoproteins. Purine has not been demonstrated, although aqueous extracts of hair have been found to contain pentoses, uric acid, and other purines, in great amounts. Liberated purines change into uric acid.

To conclude, we may profitably ponder the words of Braun-Falco, who, writing about the light thrown by histochemistry on hair growth processes says, "We are at the beginning of these investigations, and there are still great difficulties in methods. These methods provide a valuable complement to histological-morphological findings. Only a meticulous investigation, and an intimate contact between dermatological biochemistry and physiology, and histochemistry and biophysics can bring real progress to our knowledge."[2]

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PHARMACIST FIGHTS BACK

(*Continued from page 707*)

manufacturers who have pursued similar policies.

Pharmacists are more readily imposing boycotts on manufacturers whose sales policies are contrary to the best interests of the profession. Companies who sell to mail order prescription houses are cases in point. Those manufacturers encouraging sales directly to physicians also are on the pharmacist's black list. One pharmacist tells of an extreme case in which the detailman of a reputable ethical drug company asked to examine the store's prescription files to see which physicians were doing all the prescribing for a particular product. Obligingly, the pharmacist

(*Continued on page 822*)

Patents and Trademarks

BY THOMAS CIFELLI, JR., PATENT ATTORNEY†

Confidential Information Can Be Expensive

A dangerous practice which appears to be very widespread is the acceptance of information from people outside one's company under conditions which lead to what is called the creation of a confidential relationship. For this reason many companies follow a strict policy of not accepting any information except on conditions stipulated to the party who wishes to offer the information. Generally speaking, those stipulated conditions give the receiving company the right to judge the idea without explanation and expressly negate the creation of a confidential relationship, limiting the receiving company's obligation to the paying of royalties under any patent or patents obtained.

Those companies, however, which do not follow the procedure of negating the creation of a confidential relationship usually justify their action or inaction on the ground of expediency, that is, the saving of time and red tape. As long as the idea is of no value, and the company never utilizes it or anything like it, there is no harm done. However, where the receiving company does embark on the exploitation of the idea or one similar to it, rather "sticky" situations result. Another problem that arises when a secret process is exploited is that the courts may decide that there is no time limit on the period during which one has to pay. Readers of this journal will recall an article some time ago noting a case in which Warner-Lambert was required to pay for a secret formula no longer secret. In that case, payments under the Listerine antiseptic have been made, for some 75 years, the payments totaling more than $22,000,000. The payments are presently in excess of $1,500,000 annually. Under the decision of the court, Warner-Lambert is still required to pay substantial royalties to the inventor of the original Listerine formulation.

More recently, the Vitro Corporation of America was found liable for damages in excess of $350,000 because a court ruled that it had received certain information secret in nature, in confidence. Perhaps a close look at the facts of this case will be of general interest.

It appears that Vitro owned a refining plant at Canonsburg, Pennsylvania which had been used for the reclamation of uranium from atomic wastes. In 1953 Vitro learned that its contract for such reclamation might not be renewed by the Atomic Energy Commission. Consequently, Vitro found it necessary to look for other uses for the Canonsburg plant. It considered various possibilities among which was the recovery of metal salts from high temperature steel alloy scrap, notably S-816 used in jet engines. Vitro did not know of any commercially feasible method for the recovery of the valuable compounds of the scrap, principally cobalt, nickel and chromium. Its chemist indicated that two problems made reclamation of the valuable metals impractical from a commercial standpoint. These were lack of an economical digestion method which would quickly dissolve large chunks of scrap and, after solution was achieved, the difficulty of separating cobalt from other metals since cobalt would be contaminated by chromium.

Vitro embarked upon various laboratory experimentation to develop a commercially useful reclamation process without appreciable success. However, it learned from a high official in the Defense Department that Hall had developed a practical reclamation process. Thereupon, it made contact with James D. Hall and negotiations were commenced concerning a contemplated purchase of the process by Vitro.

Thus, on September 17, 1953, various people from Vitro were taken through the Hall plant at Wickliffe, Ohio, for a period of approximately three hours. On that day, Hall took the Vitro representatives through the building, showed them his equipment and made certain explanations. On October 13th and 14th, Hall, his attorney and the accountant, came to New York and conferred with Vitro for the purpose of making a business arrangement for Vitro's use of the Hall process. At these meetings, Vitro asked to be allowed to make an extensive study of the Hall process and to have the details of the process disclosed to it. It was suggested by Hall's lawyer that the parties enter into a nondisclosure agreement, the breach whereof is the subject matter of this litigation.

An agreement was executed on October 21, 1953, which reads as follows: "So that you and representatives of your company and ours may discuss technical information which you have available as to scrap metal recovery processes, presently in commercial use by The Hall Company, confidential and secret in nature, we agree, in consideration of dis-

†Richards and Cifelli, Newark 2, New Jersey.

closures to us of such technical and operative information relating to scrap metal recovery processes, to keep confidential the information so imparted to us and not to make use of it until it becomes publicly known other than by an act or omission on our part."

Also, at the New York meeting in October, Hall and representatives of Vitro commenced discussion of a proposed agreement for the use by Vitro of the Hall process and thereafter "agreed in principle" on the terms of the proposed arrangement subject to Vitro's confirmation and study of several technical matters. The substance of the "agreement in principle" as indicated by the evidence, including the minutes of Vitro's executive committee meeting on October 16, 1953, is as follows: Vitro would pay $100,000 on execution of the agreement, a minimum payment of $50,000 per year for a period of six years, with maximum payment of $1,500,000.

Following the formulation of the "agreement in principle" and the execution of the nondisclosure agreement, Vitro's chemists spent approximately one week at Hall's Wickcliffe plant where Hall fully disclosed his process for the recovery of metal salts from S-816 scrap, including both the digestion step and the separation of various metals in solution from each other.

At the November 4, 1953 meeting of the board of directors of Vitro, both agreements were reported by George White, Vitro's executive vice-president, who had signed the nondisclosure agreement in its behalf. The minutes of the board meeting show that White reported to the board on the status of the negotiations with Hall for the acquisition of his patent pertaining to the recovery of cobalt, nickel, columbium, molybdenum, and so forth, reviewed his professional background and experience, the nature of the process for which he claimed to hold patents, and the scope of his current operations, and that Hall had originally asked $1,500,000 for his patent. White also reported that although it is recognized that the payments to Mr. Hall are relatively high, it is the opinion of management that this should be a very profitable business in a field where considerable work is needed, and is beginning at a time when we have an empty plant at Canonsburg requiring work. The management will continue their investigation into all possible details and hopes to have a complete proposal ready for presentation to the board at its next meeting.

The court, in this case, the Court of Appeals, Sixth Circuit, concluded that the status of the negotiations between Hall and Vitro, as indicated by Vitro's own records, as of November 4, 1958, was that a nondisclosure agreement had been executed pursuant to which Hall had made full disclosures to Vitro and that while no firm agreement had been consummated concerning payments to Hall for his process, the parties nonetheless had, after some measure of bargaining, settled upon a definite price scheme, the minimum amounts being a $10,000 initial payment and $50,000 per annum for a period of six years. The board minutes, however, indicate that several matters required investigation prior to Vitro's entrance into a binding commitment to Hall. Primarily, Vitro desired to make further technical studies relating to the feasibility of the Hall process, to obtain advice on patentability and to have a market survey made.

Soon after the November 4th board meeting, the situation between the parties worsened appreciably. Vitro claimed that the Hall process could not be made to work economically, in that the cost of chemicals per unit of metal was substantially higher than Hall's estimate and the percentage of recovery of the valuable metals was lower than that promised by Hall. Hall, however, contended that its estimates were accurate and based upon its own experience. Also, Vitro's marketing consultant, McKinsey & Company, advised against Vitro's embarkation upon the reclamation project as a long run operation but qualified its conclusion by advising that the project had some merit as an interim operation, with greatly reduced fixed commitments to Hall. The market report, based on projected figures, indicated that Vitro would be able to earn a profit of 13 per cent with inclusion of payments to Hall under the "agreement in principle" or a profit of 21.8 per cent without payments to Hall. And finally, Vitro asserted that the patent counsel had given an adverse opinion as to the patentability of the digestion step, application for which was then pending (this patent did issue on April 30, 1955).

Early in 1954, Vitro notified Hall that it no longer wished to purchase any rights to the Hall process and soon after commenced to use, with only slight variations, the portion of the Hall process for the separation of the various metals from the digested scrap.

The case has had a rather long history, going up and down on appeal, but to summarize it appears that while Vitro had not used Hall's entire process, not employing the digestion step, nevertheless the Hall recovery process was used by Vitro. The court considered this process to be a trade secret and that its use constituted a breach of the nondisclosure agreement.

Vitro claimed that "the agreement in principle" related only to the digestion patent which it did not use and thus the agreement should not be used to determine damages which involve only use of the recovery step. However, the master to whom the court referred the question of the amount of damages did not agree. Instead he awarded damages to Hall to the extent of $100,000, the down payment, and $50,000 per year for the years 1954 through 1957. This amount was actually increased by the court later, the sum of $18,493 being added for the portion of the year 1958 up until May 14, 1958, the date of the court's mandate.

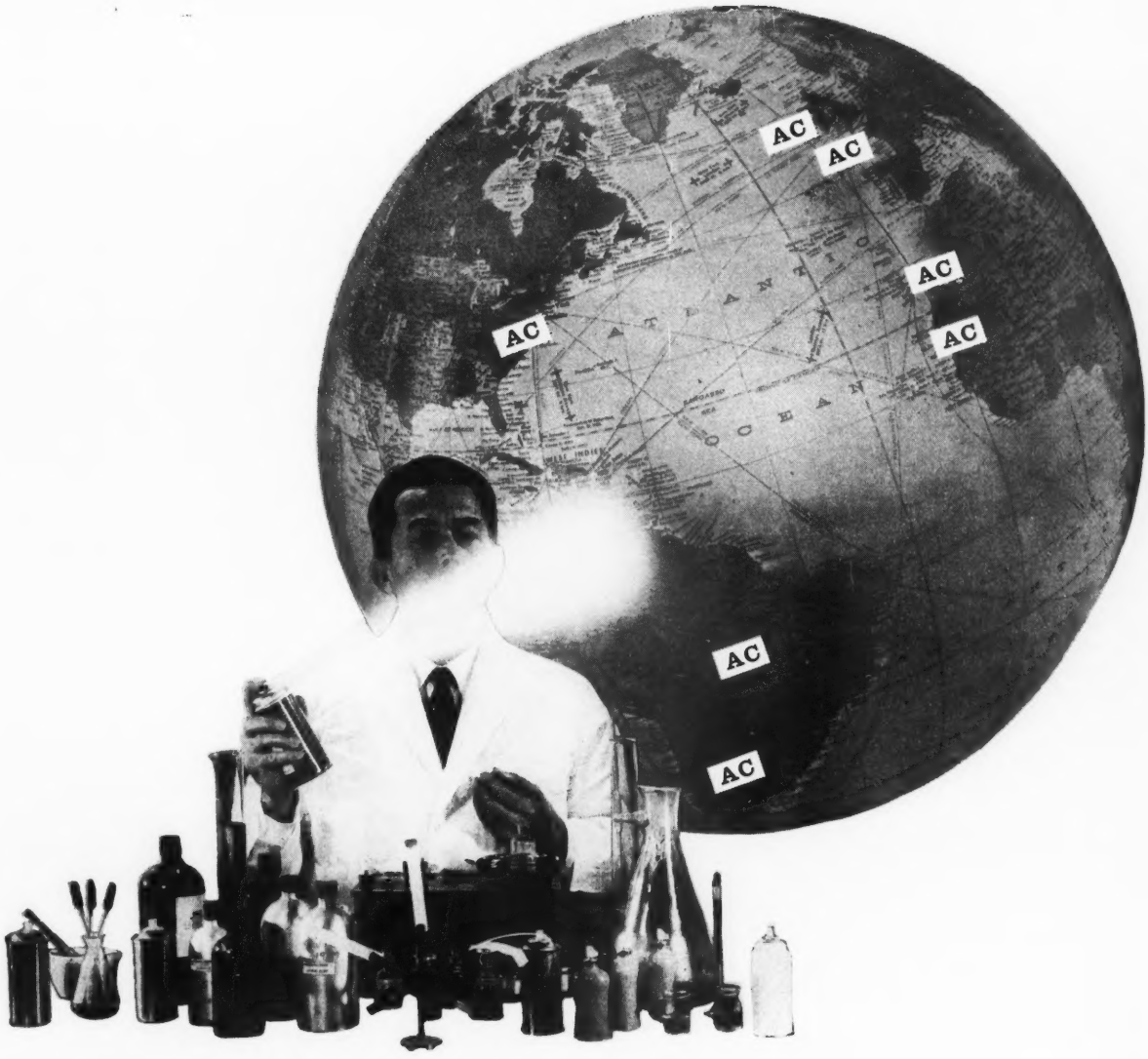
Helena Rubenstein's "Pasteurized" Refused Registration

The United States Patent Office Trademark Trial and Appeal Board recently refused to register Helena Rubenstein's "Pasteurized" as a trademark for face cream, ruling that the evidence before it was insufficient to establish that "Pasteurized" is in fact a trademark which identifies Helena Rubenstein's face cream and distinguishes it from like goods of others.

It appears that specimens filed with the application showed that the following notation was on the containers:

" 'Pasteurized' Face Cream Special
The Perfect Cleansing and Beauty Cream
Helena Rubenstein'."

(*Continued on page 784*)



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PATENTS AND TRADEMARKS

(Continued from page 782)

The Patent Office took the position that the term "Pasteurized" is so highly descriptive of the face cream that it is incapable of identifying the product. In this connection, the Patent Office ruled that the term merely signifies that Helena Rubenstein's face cream has been treated by the pasteurization method to render it sterile or partially sterile. Helena Rubenstein did not deny that its face cream had been pasteurized but contended that whether or not it had been so processed is immaterial since the term has acquired a secondary meaning as an indication of origin for its face cream. In this connection, Helena Rubenstein relied upon its ownership of Registration No. 375,501 for "Pasteurized" and design, "Pasteurized" being disclaimed, for talcum powder, talc, body talc, bath dusting powder, face powder, deodorant powder, and after shave talcum powder, and its expired Registration No. 210,650 for "Pasteurized Cream" for face cream. Also, an affidavit of Helena Rubenstein's vice-president was on file showing that the term "Pasteurized" has been used continuously by Helena Rubenstein and its predecessor in connection with facial and massage cream since 1923. Also, a record or tabulation of sales of "Pasteurized" cream for the period of 1950 through 1959 reflecting sales of more than $300,000 each year was in evidence, as were copies of advertising material appearing in national consumer publications, and other literature pertaining to various cosmetics and toiletries sold by applicant.

The Patent Office noted that the term "Pasteurized" was disclaimed in Registration No. 375,501 and considered this to be an admission by Helena Rubenstein, that at least at the time of issuance of the registration, this word was descriptive of the goods identified therein. Under such circumstances, the Patent Office took the position that the registration could not be accepted as evidence of distinctiveness or be considered to be of any evidential value in determining Helena Rubenstein's claim of secondary meaning. The Board even went so far as to state:

"The fact that applicant and its predecessor have continuously used the term Pasteurized in connection with facial and massage creams for over 30 years and that they may have been the only ones to do so is not sufficient in and of itself to impart a secondary meaning to the term Pasteurized."

The Board further ruled that the commercial success of Helena Rubenstein's face cream is evidence of the popularity of the product but not necessarily of any recognition of the purchasers thereof of "Pasteurized" as an indication of origin of such goods.

The Patent Office Board felt that the only evidence regarding Helena Rubenstein's use of the term "Pasteurized" is found in its copies of advertising and

For the manufacture of drugs and cosmetics

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acetanilide
acetic anhydride
acetonitrile
benzoquinone
n-butyronitrile
crotonaldehyde
isobutyraldehyde
isobutyronitrile

Hemostatic Agent and Absorbent
oxidized cellulose

Antioxidants
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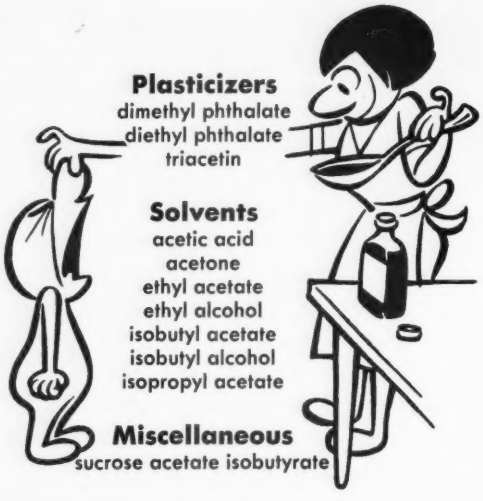

Plasticizers
dimethyl phthalate
diethyl phthalate
triacetin

Solvents
acetic acid
acetone
ethyl acetate
ethyl alcohol
isobutyl acetate
isobutyl alcohol
isopropyl acetate

Miscellaneous
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promotional material. However, the Board ruled that "Pasteurized" is used as part of such phrases as "Pasteurized Face Cream," "Pasteurized Whitening Cream," Pasteurized Face Cream Special," and the like, and only in association with or in listing with other Helena Rubenstein's products identified by both brand names and common and descriptive names.

The Board also passed aside the fact that since prior to 1937 Helena Rubenstein placed quotation marks around the word "Pasteurized" whenever it was used in its advertising material and on its containers for face creams, saying that that alone did not make "Pasteurized" a trade mark.

It will be interesting to see what the appeals court will do on this case if an appeal is taken from the Patent Office decision.

American Patent System Week

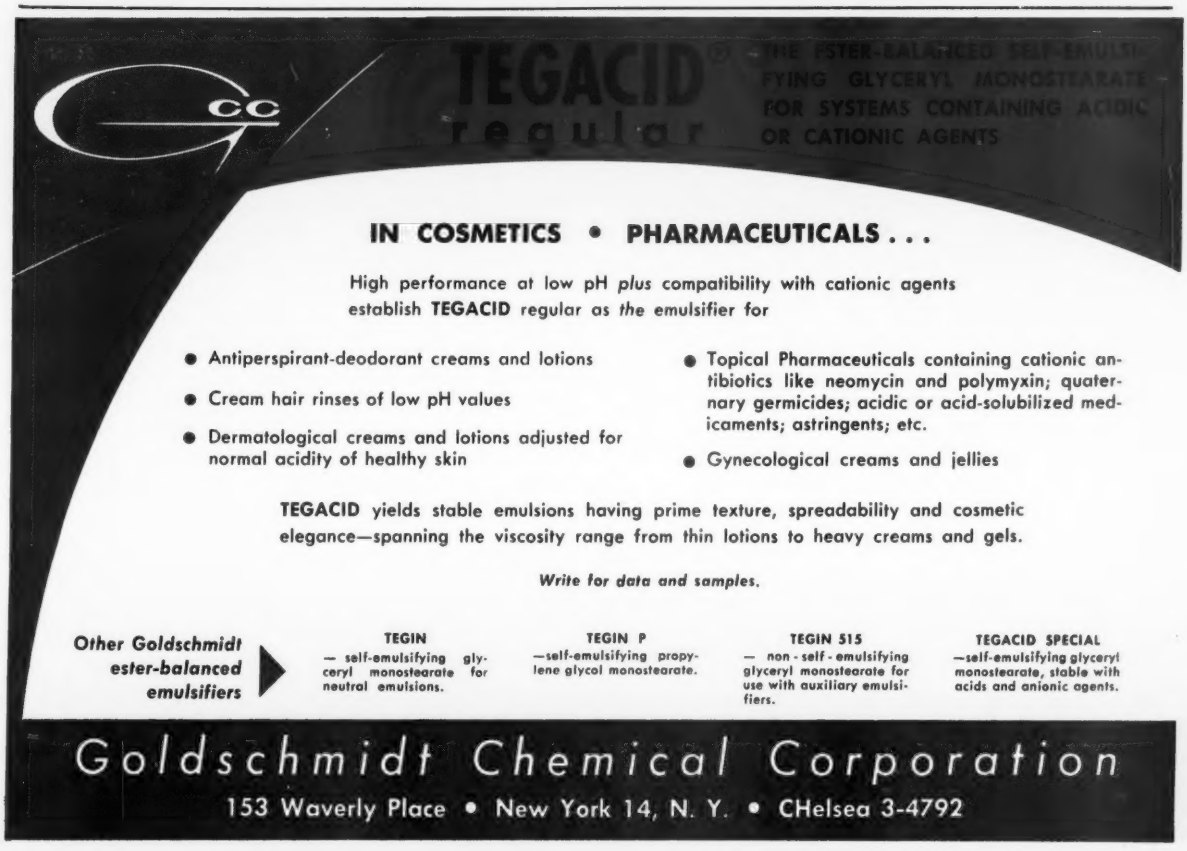
As previously noted herein, the 125th Anniversary of the American Patent System was celebrated on October 18th to 20th. The committee in charge, headed by Dr. Vanaver Bush, arranged a full program of exhibits, tours, seminars, lectures, luncheons, and formal dinners.

There were two interesting addresses at the celebration. These were delivered by Representative E. Q. Daddario, Chairman of the Subcommittee on Patents, Committee on Science and Astronautics, House of Representatives, and by Dr. Alan T. Waterman, Director, National Science Foundation.

Rep. Daddario, thought it "a curious thing" that while Congress passed a resolution to commemorate the patent system, on one hand, it, nevertheless, is inserting patent clauses in recent research legislation having the effect of "retarding the interest of American enterprise to invent and particularly to deter small business from entering into research contracts with the government." Rep. Daddario stated that he felt that a systematic effort to incorporate restrictive patent clauses in research legislation represented a serious threat to the United States Patent System. He felt that solution did not lie in the direction of throwing all inventions in connection with federal research into what he called a grab bag.

Those who chafe at what they consider long delays in connection with patent procedures will be interested to learn that the Patent Office and the Bureau of Standards are attempting to discover methods for applying electronic computers to patent searching. Dr. Waterman in his talk urged a substantially increased investment in such efforts.

Dr. Waterman, relying on Patent Office statistics, showed that the number of new patents has been going down over the past several decades, not up. This is so even though there has been a great increase since World War II in research and development activities. The explanation is that most of the re-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search and development activity is of the sort that does not end in patent applications.

While not a part of the 125th Anniversary celebration, patent practitioners were asked by the new Commissioner of Patents, David L. Ladd, to make suggestions for the improvement of the operation of the United States Patent Office. In other words, the new commissioner is giving patent practitioners an opportunity to "sound-off."

Also evidence of the interest and activity which the new commissioner is bringing to the office, is a management survey, now underway, covering the facilities, organization, personnel policies and procedures of the Patent Office.

In addition, United States Patent Office officials have joined representatives of eight other nations recently in a work shop to explore the problems of storage and retrieval of information which are shared by many Patent Offices. It appears that this country is not the only one which is finding that the work load is increasing in volume. Among the reasons for this is the fact that technical and scientific literature itself is increasing and this of course means that more time is required to search the prior art.

RECENT PATENTS

2,994,716—Farbwerke Hoechst—Addition Product of Tetracycline and Methanol.

2,995,489—Abbott Laboratories—Method of Obtaining Preanesthetic Sedation and Drying with 1-(2-Diethylaminoethyl)-5-Ethyl-5-Phenylbarbituric Acid.

2,995,491—Abbott Laboratories—Method of Treating Cardiac Arrhythmia With 1-(2-Diethylaminoethyl)-5-Ethyl-5-Phenylbarbituric Acid.

2,995,492—Lakeside Laboratories, Inc.—Piperidine Derivatives with Psychotogenic Activity.

2,995,493—Johnson & Johnson—Ficus Enzyme and Hydrophilic Carrier Composition.

2,995,495—Orma Istituto Romano—Stable Solution of Vitamin A-Ascorbic Acid Complex in Alcohol.

2,995,525 — Sterling Drug Inc. — 2-(4-Aroylaminophenyl)-5, 7-Dihydroxy-2H-v-Triazolo [d] Pyrimidines.

2,995,550—Olin Mathieson—Steroidal Intermediates.

2,996,553 — Abbott Laboratories — Substituted Piperazines.

2,995,554 — Lakeside Laboratories, Inc. — Substituted Glycolic Acid Esters of 1, 4-Bis-(Hydroxyalkyl)-Piperazines.

2,995,556 — Ciba Pharmaceutical — Deserpidic Acid Esters.

2,995,560 — Lakeside Laboratories, Inc. — Acetates of 3-Piperidinol.

2,995,562—Parke, Davis & Company—Higher Alkylpyridine-N-Oxides.

2,995,563—Ethicon, Inc.—Propiophenones.

2,995,567—Merck & Co., Inc.—Serotonin Antagonists.

2,995,576 — Upjohn Company — Hydroxylactone Phosphites.

2,995,581 — Merck & Co., Inc. — Derivatives of 5-Hydroxymethyl Furfural Ethers.

2,995,582 — Merck & Co., Inc. — Derivatives of 5-Hydroxymethyl Furfural.

2,995,585—Les Laboratoires Francais de Chimiotherapie —M-Sulfo Benzoates of Steroid Hormones.

2,995,598—Smith, Miller & Patch, Inc.—Beta(Ortho-Acetoxyphenyl)Propionic Acid.

3,003,915 — Bristol-Myers Company — Method of Destroying Lactobacilli Employing Mono (Tetradecylamine) Malonate.

3,003,917—National Drug Company—Wound Healing Composition.

3,003,918—Merck & Co., Inc.—Production of Ceruloplasmin in a Purified State From Blood Plasma Fractions.

3,003,969—Ciba, Limited—Detergent Compositions for the Hair.

3,004,023—G. D. Searle & Co.—3-Alkylthio-17α-Carboxyethylandrosta-3, 5-Dien-17β-Ol Lactones.

3,004,024 — Olin Mathieson — Benzothiadiazine Derivatives.

3,004,025—Richardson-Merrell Inc.—Oxazines.

3,004,044 — Upjohn — 1-Dehydro-6-Fluoro-11-Oxygenated Progresterones.

3,004,045 — Organon, Inc. — Δ5(10)-3, 6-Diketo Androstenes.

3,004,047 — Olin Mathieson — 6α-Halo-11α-Hydroxy Steroids of the Pregnane Series.

3,004,069—Burroughs Wellcome & Co.—Naphthalene Derivatives.

3,004,888—Chas. Pfizer—Mastitis Treatment.

3,004,889 — Bristol-Myers Company — Cyclobutane Analgesics.

3,004,890 — Ciba Pharmaceutical Products — New Pregnane-18-Acid Derivatives.

3,004,891—Chas. Pfizer—Sable, Aqueous Solutions of Sodium Phosphite, Sodium Formaldehyde Sulfoxylate, and Dihydrostreptomycin Sulfate.

3,004,893 — Richardson-Merrell Inc. — Enteric Coated Trypsin and Chymotrypsin Anti-Inflammatory Compositions.

3,004,894—Upjohn—Therapeutic Composition Comprising Tetracycline and a Dioxolane.

3,004,895—Samuel M. Schwartz—Diaper Rash Preventative.

3,004,897—Joseph Shore—Dental Preparation.

3,004,964 — Mallinckrodt Chemical Works — 3-Amino-2, 4, 6-Triiodo-5-Ureidobenzoic Acid Compounds.

3,004,966 — British Drug Houses Limited — 6-Methyl Steroid Compounds.

3,004,967—G. D. Searle & Co.—Process for the Production of 3β-Hydroxy-16α, 17α-Epoxy-5-Pregnen-20-One.

3,004,969 — Dow Chemical Company — 3(Salicylideneamino)Coumarins.

3,004,972 — Ciba Pharmaceutical Products — 1-Phenyl-2-Alkyl-4-Amino-3:6 Dioxo-1:2:3:6-Tetrahydropyridazines.

3,004,973 — Ciba Pharmaceutical Products — Tetrahydro Dioxopyridazines.

3,004,975 — Ciba Pharmaceutical Products — Hydrogen-

ated Benz-Indoles.

3,004,976 — Ciba Pharmaceutical Products — Aromatic Carboxylic Acid Esters of 4-Phenyl-N-Alkanol-Piperidines.

3,004,977—Paul A. J. Janssen—Lower Alkyl Esters of 1-(2 - Benzoylethyl) - 3 - Methyl - 4 - Phenylpiperidine - 4-Carboxylic-Acid and 1-(3-Hydroxy-3-Phenylpropyl)-3-Methyl-4-Phenylpiperidine-4-Carboxylic Acid.

3,004,978 — Ciba Pharmaceutical Products — Certain 1-Tert-Amino Lower Alkyl Azabenzimidazoles.

3,004,979—Ciba Pharmaceutical Products—Oximes of Certain Tetrahydropyridine Hydrocarbon Ketones.

3,004,982—Ciba Pharmaceutical Products—New Benzimidazoles.

3,004,983 — Smith Kline & French Labs. — 4-Aminopyrazolo[3, 4-a]Indene Derivatives.

3,004,984—C. F. Boehringer & Soehne—Pyrazolonyl Carbinols.

3,004,988 — Dow Chemical Company — 3-(Salicylamino)Coumarins.

3,004,993 — Ciba Pharmaceutical Products — 17β-Methyl-20-Keto-18-Nor-17α-Pregnenes.

3,004,994—Merck & Co., Inc.—6α, 16α-Dimethyl-Pregnenes.

3,004,995—Glaxo Labs.—Steroid Compounds.

3,005,024 — Chas. Pfizer — 1:3:3-Acetaldehyde-Ammonia Adducts of Tetracycline and Its analogs.

3,005,028 — Olin Mathieson — 11α-Hydroxy-A-Norprogesterone.

3,005,720—Weco Products Co.—Bacteriostatic Articles.

3,005,754 — Bristol-Meyers Co. — Tetracycline Formulations.

3,005,755—Endo Labs.—Aqueous Solutions of Quinidine Salts and Nicotinamide.

3,005,756—University of Illinois Foundation—Diluter Containing Carbon Dioxide for Preserving Semen.

3,005,816—Les Laboratoires Francais de Chimiotherapie —Novel 18-Nor Derivatives of Cortisone.

3,005,817 — Olin Mathieson — 12α Halo-Δ20(22)-Furostene-3β, 26-Diol-11-One 3, 26-Diacylate and Preparation Thereof.

3,005,818—Ravensberg G. M. b. H.—1-Phenyl-2, 3-Dimethyl-4-Morpholino Methyl Pyrazolone-(5) Compounds.

3,005,821 — Miles Labs. — Phenylpiperazinylalkyl Amides.

3,005,829 — Merck & Co., Inc. — 3-Alpha-Acyloxy-11-Keto-D-Homoetiocholoactone.

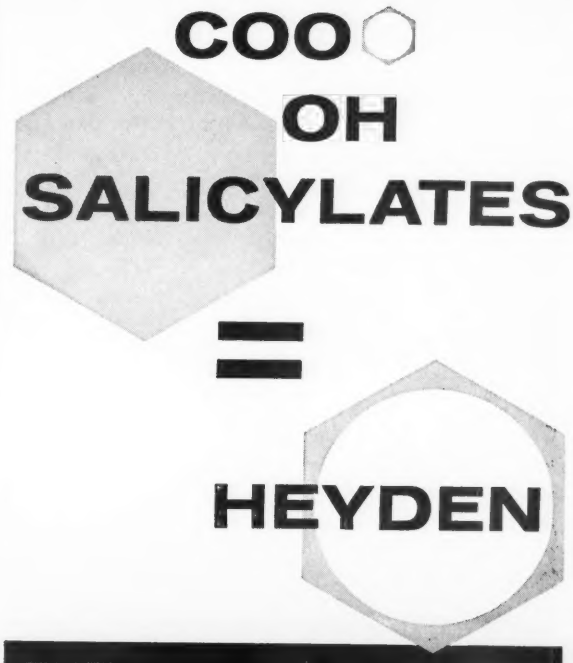
3,005,835 — G. D. Searle & Co. — D-Homo-18-Norestra-1, 3, 5(10)-Trien-17α-Ones.

3,005,836—Chas. Pfizer—Salts of Steroidal Amino Acid Esters.

3,005,837 — Upjohn — 2α-Methyl-21-Halo-11-Oxygenated 4-Pregne-3, 20-Diones and the Intermediates in the Preparation Thereof.

3,005,838 — Upjohn — 6α, 16α-Dimethyl-11-Oxygenated-17α-Hydroxy-Unsaturated-Pregnane-3, 20-Diones.

3,005,850 — American Cyanamid — N-(N-Substituted-Aminoalkyl)-Alkanoyl Anilides. •



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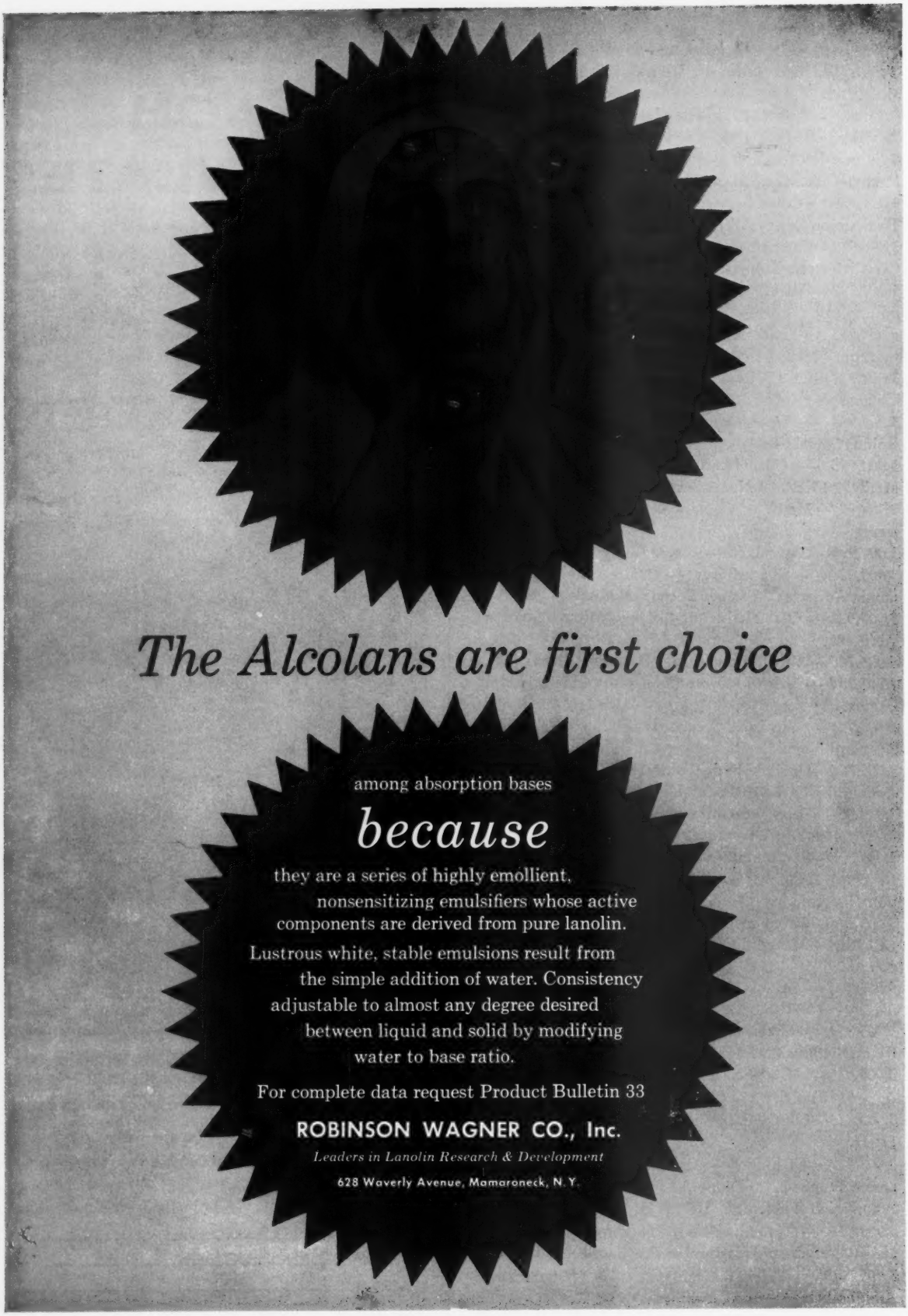
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Perfumer's Shelf

The Perfumer's Opinion

In the light of comments made by the trade that there is a need for creative perfumers, we have interviewed prominent perfumers to determine what they feel the qualifications and training of a perfumer should be.

W. H. DUNNEY, JR.

W. H. Dunney, Jr., vice-president, Ungerer and Company, has been active in the fragrance industry for 43 years and has been a perfumer for 36 years. Mr. Dunney began his work in an analytical research laboratory and later studied with his father, who was also a perfumer.

"If a young man expects to become an able perfumer he must have an acute olefactory sense. In addition to this, however, he must be artistically inclined and imaginative, since blending materials for harmony and appeal depends on creativity. . . . He must serve, for a period of time, under a qualified perfumer. However, he should develop his own ideas, think creatively, and not copy the ideas of another.

"In this way he may one day create a beautiful fragrance of his own."

ERNEST SHIFTAN

As vice-president and chief perfumer of International Flavors and Fragrances, Inc., **Ernest Shiftan** is responsible for the creation of new fragrance products both here and abroad. Mr. Shiftan was born in Europe, where he obtained his chemistry degree, and was partner in a raw materials house in France before coming to the United States in 1940.

"The young perfumer's training should consist of five steps:

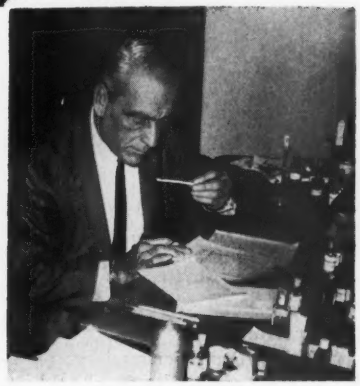
"First, he should smell the most important raw materials, study each, and write down his impressions. These olefactory impressions should be determined by his own imagination and he should associate each with olefactory impressions from every day life. If possible, in a later stage, these impressions should be classified into familiar perfumery groups. If the young perfumer is truly creative, it will be evident in these notes.

"Second, he should learn to distinguish the ingredients used in simple mixtures, including those bases used in classic perfumes.

"Third, he should become familiar with the different qualities of products. This can be achieved by study or by serving in an odor control department.

"Fourth, he should try to copy the odor of natural flowers, using *only* his own olefactory impressions to guide him. No literature or outside formulas should be used for this.

"Fifth, he should create a fragrance of his own."



LEON HARDY

Leon Hardy, chief perfumer, Firmenich and Company, was born in Grasse, France, where he studied at the College of Grasse. He entered the perfumery business in 1924 and spent his first year learning the operations that are basic to perfumery. He later became a qualified perfumer and stayed in Grasse until he came to this country in 1954.

"A perfumer should work for five or six years developing his craftsmanship. This period of training should include time spent learning the basic operations of perfumery, and a longer period spent under the supervision of a qualified perfumer.

"He should smell all perfume materials, natural and synthetic, and learn to know the smell of the flowers used in perfumery. When this has been accomplished, he should study the classic fragrances of the world, and finally create a fragrance.

"From this point on, it is up to the individual."

Walter Lengsfelder's decision to become a perfumer was prompted by a curiosity about fragrance and an interest in art. After graduating from the University of Vienna as a chemical engineer, he held various positions in France and Germany, and in the early 1930's, in order to devote more time to perfumery, accepted an offer to become chief per-

WALTER LENGSFELDER

fumer of an essential oil and compound house in Europe. After World War II, he and an associate founded a new firm, Fleuroma, Inc., of which Mr. Lengsfelder is president and chief perfumer.

"If the young person is going to invest time and effort, he should posess certain intangible qualifications. Among these are good taste, imagination, creativity, and the ability to judge correctly and objectively one's own work and the work of others. The creative perfumer must also be able to sense the trends of developing fashions in fragrances and have a good insight into the commercial aspects of his work."

PIERRE BOUILLETTE

Pierre Bouillette, director of fragrance promotion, Givaudan-Delawanna, Inc., is a graduate of the University of Paris and has been associated with the perfume, soap and cosmetic industry in the United States, France, and Brazil, for over 30 years. A perfumer and cosmetic chemist, Mr. Bouillette is also an author, lecturer and consultant.

"The young perfumer must possess the ability to evaluate, distinguish, and memorize odors. Because perfumery lacks an exact language of its own, the classification and relation of odors must be put to memory through use and study.

"Because the modern perfumer must work with a variety of natural and synthetic materials, and because of regulations governing the ingredients he uses, he should have a certain amount of basic scientific knowledge. Physics, biology, the physiology of odors, and dermatology are important in his work. He must also understand people, since perfumes are no longer used only by the elite."

Fritzsche Citrus Oils

A new brand of citrus oils is being introduced by Fritzsche Brothers, Inc., as Citrus Valley Brand. The USP grades of lemon and orange oils available maintain and exceed previous high standards. The company has discontinued its distributorship for a California packer.

D & O New Orange and Lemon Oil

D & O has resigned as distributor of citrus oils for a California producer and will carry a new line of lemon and orange oils under the label Citrus Valley Brand.

Jasmin

Jasmin concrete oil is obtained by treating flowers with petroleum ether or liquid butane. The corresponding absolute oil is obtained by washing the concrete with alcohol, chilling to precipitate odorless waxes and removing alcohol under reduced pressure. According to Pierre A. Muller (*S.P.C.* 34:949, 1961), a good jasmin absolute is one of nature's marvels, irreplacable for quality, strength, and fineness.

Colorless absolutes may be prepared by steam distillation at reduced pressures, but light colored oils are available.

The major constituents of jasmin oil are benzyl acetate, linalol, linalyl acetate, benzyl alcohol, indole, jasmone, methyl anthranilate, along with small amounts of other constituents. The basis of all jasmins is benzyl acetate and in preparation of a jasmin compound, only the best available quality of the ester should be used. The following are jasmin formulations:

Formula P.A.M.	
Benzyl acetate	350
Terpineol extra	200
α-Amyl cinnamic aldehyde	200
Hydroxycitronellal	100
Phenylethyl alcohol	100
Linalol	50
Amyl salicylate	50
Isoeugenol	50
Olibanum resinoid	25
Terpinyl anthranilate	25
Orange flower absolute (de l'eau or artificial)	15
Aldehyde C11	5
γ-Undecalactone	5
Indolflor (or indole or other substitute)	15
Benzyl alcohol	0-110
	1190-1300

This is a relatively inexpensive composition of great strength. Rounded off with a little isojasmone and natural jasmin absolute, together with some ylang-ylang absolute, it is capable of giving very acceptable results.

Jasmin Art. (Swiss Type)	
Hydroxycitronellal	230
Phenylethyl alcohol	200
Benzyl acetate	200
Ylang-ylang oil, III	60
Linalol	70
Aurantiol	40
Linalyl acetate	40
Terpineol	20
Rhodinol	15
α-Ionone	6
Benzyl formate	6
α-Amyl cinnamic aldehyde	6
Paracresol	3
Benzoin resinoid	4
γ-Undecalactone	0.5
Ethyl methylphenyl glycidate	0.7
Aldehyde C8	0.2
Benzyl alcohol	100
	1001.4

Attractants and Repellents

The aromatic and flavor industry has been delving deeper and deeper into the research and product development of attractants and repellents for birds, fish and insects.

We have read quite a bit lately about many experiments in bird repellents, flavored lures for fish and a wide variety of aromatic activity in the insect world. Of course attractants and repellents for insects have been around a good many years.

Refinements in this field can be best illustrated with field tests using Gyplure, a synthetic aromatic chemical attractant. Gyplure selectively attracts the male moth to the ground where he completely forgets about the females. The females, remaining on tree trunks, vainly await the arrival of the male, and end the season as virgin moths.

Cosmetic Compounding

Sugar Surfactants

Several effective nonionic surface-active agents in which a single sucrose moiety is the only solubilizing group were described by V. R. Gaertner (*J.A.O.A.C.* 38: 410, 1961). Alkylsucroses, prepared *via* sodium sucrate in dimethyl sulfoxide (DMSO) and higher alkyl bromides, are believed to be the first sugar-based surfactants which are at least equivalent to the best anionics and nonionics in cloth detergency on the basis of laboratory data; they were also active lime-soap dispersants. Another ether-linked type, the (3-alkoxy-2-hydroxy-propyl) and (2-hydroxyalkyl) sucroses, derived from glycidyl ethers or olefin oxides, although second in detergency to the first type, included exceptional nonionic lathering agents. t-Dodecylbenzylsucrose, from dodecylbenzyl chloride, was also a rather active detergent and lime-soap dispersant. Less active but easily prepared sucrose half-esters from alkenylsuccinic anhydrides were described.

One sucrose moiety in ether-linked surfactants was an effective hydrophile for alkyl hydrophobes at least as large as hexadecyl, but tridecyl derivatives were superior in activity.

Major importance was attached to the choice of solvent, catalyst, and time/temperature factors. Evidence was presented to show that sucrose derivatives were partially degraded by the alkaline conditions required in this work and that this degradation was both detrimental to detergency and initially beneficial to lather in specific cases.

An improved procedure involving the use of DMSO for the alkaline dehydrochlorination of higher alkoxychloropropanols to glycidyl ethers was described.

Tablet Making

The formulation requirements of tablets today have become more exacting than they were even ten years ago according to J. L. Livingstone (*Manuf. Chem.* 1961, 443). The request is still usually for a tablet hard as a rock which will nevertheless disintegrate at a determined rate after swallowing, and will retain these characteristics and be stable indefinitely.

Today tablets are compressed and ejected at greater speed, vibrated to remove surplus powder, moved around in bulk by mechanical equipment and packed by fast automatic machinery. This is tough on tablets. In addition they must withstand the usual hazards of transport during distribution. At the same time standards for uniformity of weight and for disintegration have become more stringent, while there are usually limits for thickness to insure that the tablet fits the feed mechanisms of packing machines and that the correct number of tablets fill the chosen container with just the right amount of headroom.

Requirements for disintegration vary greatly. We have the diverse examples of the quick-action antacid or analgesic, the compressed lozenge, the enteric-coated tablet and the sustained release tablet.

Disintegration rate and hardness may vary through the tablet life, generally tending to increase but sometimes to decrease. Starch, particularly maize starch, is still the most commonly used disintegrating agent. The popular belief that starch aids disintegration by swelling in contact with water is of doubtful validity. In fact the action appears to be mainly a capillary penetration of water into the tablet.

Usually ten to 15 per cent of starch is sufficient. It is wise to keep a watch on the moisture content of the starch being used. If this is excessive it means that less liquid will be needed to produce granulation consistency and therefore the amount of granulating agent added may be less than usual. This is likely to cause inconsistent results during batch manufacture.

Alginic acid is a useful aid to disintegration; it is rather expensive if used at its optimum level of seven to ten per cent, but one per cent gives a useful boost in many cases and can be added to about ten per cent of starch. It works a little better when added during wet granulation in contrast to being added dry at the end. It is of some use in keeping down dustiness on the tablet surface.

The simplest granulating agent to use is water, and moistening alone may be sufficient to form a granule where the other raw materials have some adherent properties. When using water-soluble cellulose ethers, water alone, as the vehicle often causes too much swelling and stickiness, and water/ethanol or water/isopropanol mixtures may give better results. Starch paste is a safe, inexpensive and reliable granulating agent. It should be properly made and used within a few hours. It is a good idea to use a standard strength throughout the department, say ten per cent. Addition of a wetting agent may help in cases of rather hydrophobic powders, for example sodium lauryl sulfate at about 0.125 per cent of the final tablet weight may be used.

Gelatin is a very good binding agent and is best employed as an additional to starch paste. Material, with a bloom value of about 230, is very suitable and it should be soaked in cold water for several hours, preferably overnight, before dissolving. This insures maximum gel strength.

It should be added to the starch paste after the latter has been made and not boiled up with the starch.

Gum acacia is a traditional binding agent, perhaps the strongest commonly used. Many tablets tend to harden markedly in storage if made with acacia, particularly if storage temperatures are high. Other gums, such as karaya, guar and carob, have been used.

The cellulose derivatives, sodium carboxymethyl cellulose and methyl cellulose, and also sodium alginate and irish moss extract, are worth keeping available, as they may be valuable where compatibility or physical difficulties rule out other materials. Where water must be avoided and alcohol gives insufficient binding power, an alcoholic solution of ethyl cellulose—about two to five per cent of 50 cps grade—may be effective. Liquid glucose (corn syrup) and simple syrup are valuable where a soluble granulating agent is needed. If a good proportion of sugar is present in the tablet, wetting with water is sufficient for granulation.

Precompression or slugging is common in the United States. There are some cases where it is obligatory, and wherever possible a heavy slugging machine should be employed as this gives better results and avoids the great strain and wear that slugging can exert on a conventional machine.

Slugging is usually used where materials are moisture-sensitive, but should not be forgotten as a method for use with a volatile, or low melting point, raw material. In the case of a moisture-sensitive drug which will not slug, nonaqueous solvents may be tried for granulation. It should be mentioned that even if a good granule cannot be obtained, a coarse or medium powder, down to about 40 mesh, may compress satisfactorily.

Starch, lactose and calcium phosphate are probably still the most commonly used and most useful excipients. In some factories a standard excipient granule made of lactose with starch, or lactose with calcium phosphate is kept as a stock item. Over 20 per cent of starch may make the table too friable, and lactose makes a granule which on occasions may be too brittle although it disintegrates readily. Sucrose finds a place occasionally, especially in compressed lozenges. Objections to the use of sugar on the grounds that the tablets may be contra-indicated for diabetics are usually not valid, as the sugar content is so small as not to matter. Mannitol has recently become popular as it gives the tablets a pleasant smoothness in the mouth and is a good excipient. It is useful for sublingual tablets or those which have to be chewed or dissolved in the mouth.

By far the commonest lubricants used are talc, stearic acid and magnesium stearate. The main points to be considered in using these may be summarized thus:

(*a*) *Talc*—gives the granules good flow properties in the hopper and feed-frame or shoe. It is the least efficient of the three as a die lubricant, but has few other objections. About four to five per cent is usually needed.

(*b*) *Stearic acid.* This is quite efficient but beware of incompatibilities. About two per cent is needed. Because of its low melting point it may cause trouble with tablets during heat-sealing in aluminum foil and foil laminates, producing a spotty surface.

(*c*) *Magnesium Stearate* is the most efficient die lubricant of the three—about one per cent is usually required. It tends to slow down disintegration because of its water-repellent properties and may also have incompatibilities, for example, aspirin. It is excellent for giving a smooth surface and clean lettering.

It will often be found that a combination of these three is needed. Waxes, liquid paraffin, and the like are rarely of great value, but there are cases where either these or a hard oil such as hydrogenated castor oil, applied in a solvent, may be usefully employed. An oil with a melting point of about 80°C. should be used. It should be remembered that dry starch itself has some lubricant properties both in the die and the hopper. Lubricants for soluble tablets may present a difficulty. Boric acid is generally contraindicated on toxicity grounds. The higher molecular weight polyethylene glycols may sometimes help.

Sperandio and DeKay's suggestion of sodium acetate and sodium benzoate is useful and worth following, but the physical state of the acetate influences the result—some suppliers' materials being better than others. The amount of lubricant needed will vary somewhat according to whether a single punch or rotary machine is used, whether tool steel or tungsten carbide lined dies are used and whether the die clearance is large or small. For example, a greater die clearance and less lubricant are usually used. Many simple crystalline substances will compress without added lubricant.

During slugging operations particle size of the powder fed to the press may be important, a finer powder often runs much more easily with the same amount of lubricant. This is contrary to expectations as the surface area is then greater. Signs of insufficient die lubricant are: vertical score marks on the edge of the tablet, delayed dropping of the bottom punch assembly in single punch machines, and in more extreme cases the squeaking or grinding sound of the machine is indicative. Usually less lubricant is needed for a rotary machine than a single punch one, but the speed of the machine will also make a difference.

An even spread of color in a tablet is often difficult to achieve.

Methods recommended are:

(*a*) Use of starch which has already been colored with a dye solution, dried and powdered—useful for a slugged tablet.

(*b*) Incorporating the dye in the starch paste. A difficulty sometimes encountered during wet granulation is that, during drying, patches of more intense color form at the granule surface. This can sometimes be prevented by exposing the granule to room temperature for a while until preliminary drying occurs, then completing in an oven at fairly low temperature. In one case observed, an acid and an alkaline ingredient were both present in a tablet and took up the added color, each to give a different hue.

Flavors call for little comment. The flavor manufacturers supply dry flavors where the flavoring is incorporated in a protective base, for example, spray drying from a gum solution. It is usually necessary to use from one to five per cent of these. Essential oils may also be introduced into the tablet, but care should be taken in incorporating them as they may take up the lubricant.

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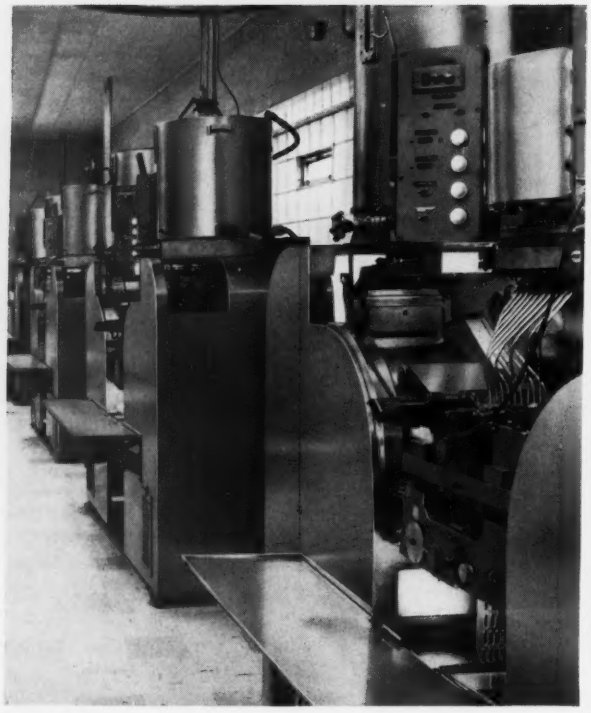
automation?



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HIGH DOSAGE VITAMINS

(Continued from page 804)

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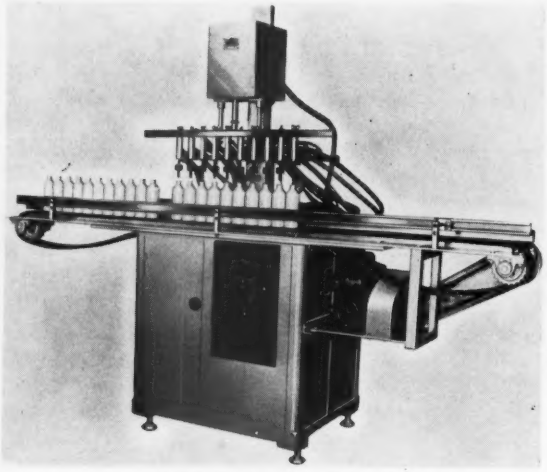
PMMI REVIEW

(Continued from page 727)

can be foot treadle operated or air motor operated. It was shown with a hopper capacity of 2½ to two gallons and a fill capacity of from ½ to ten ounces. Larger capacity machines are available.

Champlain-Zapata Plastics Machinery Company displayed the Foamolder molding machine, Processpander in-line bead expander, and Dri-Molds and Conturmolds, all used in its custom mold design service.

Ertel Engineering Corporation introduced a completely automatic and electronically controlled

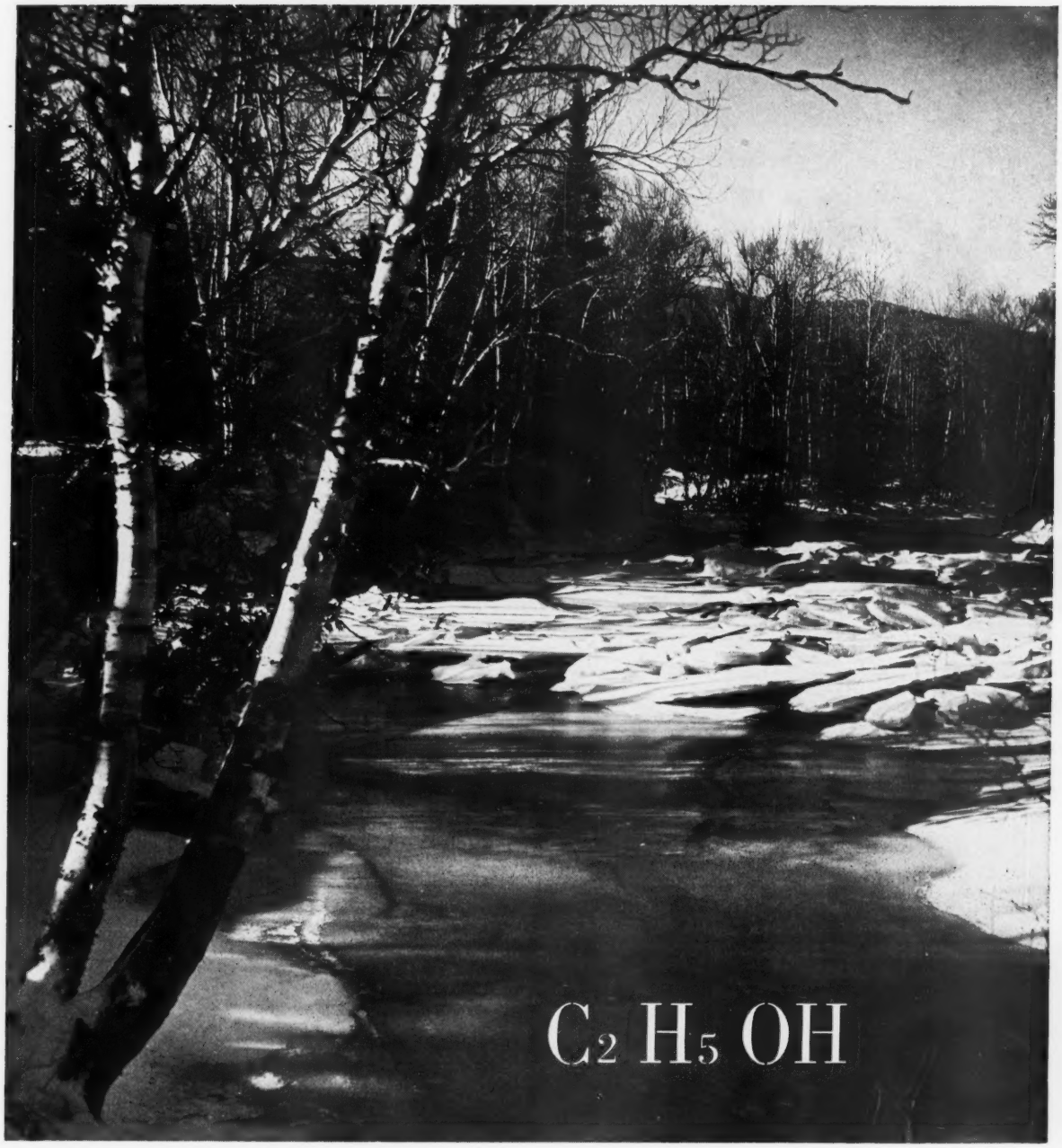


Straightline filling machine.

straightline filling machine. Its design is said to keep change-over costs to a minimum.

The Nevins Company introduced their Model S-4-6 machine for the production of Stretch-Pak display packages. The machine forms the plastic film into a loose pocket and the product is placed in it. One half of a die-cut paperboard card is then folded over, onto the other half, and the two halves are dielectrically sealed together. Heating units cause the film to shrink tightly around the package.

(Continued on page 800)



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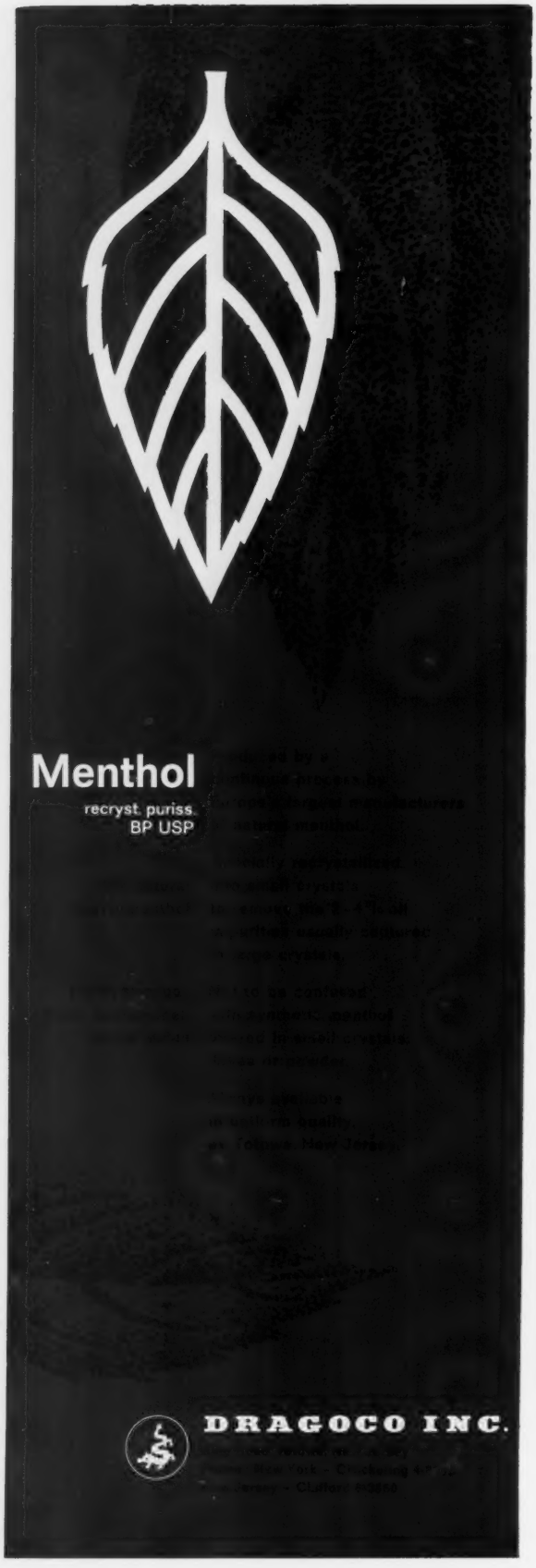
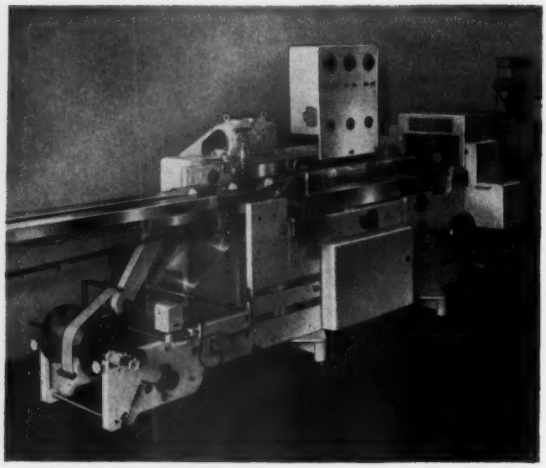


PMMI REVIEW

(*Continued from page 798*)

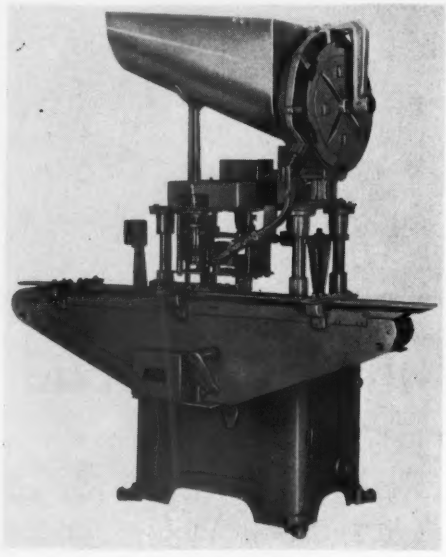
FMC Corporation's Campbell Wrapper shrink-wrapping machine, displayed with other FMC machines, automatically forms, seals and shrinks film



Shrink-wrapping machine.

around products having different sizes and shapes, at speeds of 50 to 100 packages per minute. Single and combination packages can be handled.

Resina Automatic Machinery Company, Inc., demonstrated an automatic machine that selects and applies prethreaded, pilfer-proof, aluminum screw caps. The machine is a single station automatic straight-line unit, designed to operate at a maximum speed



Cap applicator and selector.

of 45 units per minute. Hopper-fed, it has a dual purpose chuck that applies and tightens the cap and then crimps the bottom of the cap under the container's bead edge. •

Build in benefits that *SELL* cream rinses

An attractive package and some *claims* may sell the first bottle of your after-shampoo cream rinse, but it takes satisfactory product performance to sell the second. Here's a way to make certain your cream rinse passes that first consumer test . . . base your formula on TRITON® X-400. This cationic quaternary ammonium compound rinses out films, lubricates without grease, brings out highlights, makes hair silky soft, reduces static electricity and makes hair more manageable . . . all the benefits your customers seek. Make your own test and see how much better your product will perform with TRITON X-400. We'll be happy to send samples and formulating help.

ROHM & HAAS

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TRITON X-400

(*Continued from page 721*)

chines and materials. The *Thomas Register* will frequently put you on the right track also.

The value of trade shows is self evident. When manufacturers spend their money to go to these shows, they are going to be sure to get the latest and best into the booth.

Plant visits are again a self evident source of machinery knowledge and knowhow. Frequently a manufacturers' sales engineer or representative can arrange a visit to a plant in an allied industry or even a competitor where you can learn more with a quick look, or a few questions, than you can in hours of reading sales literature.

Associations such as the PMMI (Packaging Machinery Manufacturers Institute), publish directories which are a primary reference source when seeking a new piece of equipment. The PI (Packaging Institute) publishes many proceedings and committee reports that build equipment knowledge. Trade associations within your own industry are, of course, an additional valuable source of information.

When you are flying completely blind, a broadside letter to equipment suppliers in fields allied to the one in which you are interested will usually produce results.

Any or all of these sources will certainly provide the key to disclosing the competing machines in the field in which you are interested and allow you to narrow the choice and select the supplier who will serve you best.

Having disclosed the competitive offerings of the type of equipment in which you are interested, you are now faced with selecting the proper machine to do your job. It is here that the utmost cooperation and communication is necessary between you, your potential machine supplier and the suppliers of your packaging materials.

Your best preparation for selecting the right machine is, of course, complete and thorough knowledge of your product, its package, your production requirements and the nature of your business. It will be rare indeed if you are able to find among the offerings of manufacturers' standard models, a machine which matches in every detail, your exact requirements. Compromises will be necessary either to adapt a standard model to your requirement, or to adapt your package to a standard model.

All packaging machines can be classified into one of three groups by the degree of mechanization they offer: *Hand models* (Fig. 1), which perform only a minor part of the operation mechanically, the rest being performed by hand; *semi-automatics* (Fig. 2), which perform the major portion of the operation mechanically, but still require some handling of the package or its components; *fully automatics* (Fig. 3), where the operation is fully mechanized, no hand work or handling of the package is involved.

If you had a labeling operation, which of these three classes of machines would be best for you? You might quickly say, "I'll take the fully automatic because it requires no labor." But the object of mechanization is really *cost* saving, and labor is only one element of cost. It is true that fully automatic machines have the best labor rate, but they are more complex, and investment goes up. They are fast, but they are less flexible than semi-automatic or hand machines. They take longer to change over and tune-up on the next package. For efficiency, they rely more on the uniformity of the materials going through them than slower speed of less automatic units. Being more complex, they require a higher class of operating and maintenance personnel, better supervision, and better scheduling. These are just some of the areas of compromise which I mentioned before and you can see that a full knowledge of all phases of your business is necessary to make an intelligent selection.

I may sound antagonistic toward fully automatic machines, but this is just to emphasize a point. The greatest number of bottles labeled today pass through fully automatic machines.

On the other hand, the greatest number of labeling machines in the field are semi-automatics, over seven thousand of our manufacture alone. So each type has its place. Even the lowly table gummer is still the best degree of labeling mechanization in the shipping room where each carton or case is a different size, where each takes a different size label, and where you only label one or two a minute.

Placing the Right Order

Now let us say we have made the compromises, selected the right machine and have assured ourselves during the process of negotiation, of the machinery supplier's integrity and ability to serve us. The next step is to write the purchase order.

To write a proper purchase order for a packaging machine, we must first understand a basic bit of the philosophy of buying and selling. No matter how complete or thorough negotiations have been to this point, the machine man will still harbor in the back of his mind, the thought that he is going to sell you his standard model number so and so machine and *you* are going to adapt it to your requirements. You, as the purchaser on the other hand, will still harbor the thought that you are buying not a standard model number so and so but a machine specifically designed and built for you and you alone and to label your "12 ounce horse liniment" bottle for example.

You can see then that this purchase order which you are about to write has to be a masterpiece of complete communication to reconcile these opposing points of view, a document which protects each party's interest, yet is easily understood and workable.

These opposing points of view are quite natural; they merely emphasize the need to consider every

(*Continued on page 803*)

(*Continued from page 802*)

detail, every eventuality and to discuss it, negotiate it and spell it out, in the contract. Specifications are the only common language between buyer and seller and they must be complete.

The purchase order or contract usually provides not only for the machine but also for the remaining steps to successful mechanization such as:

Testing in the manufacturers plant
Field installation in buyers plant
Instruction of buyers personnel
Acceptance
Parts and instruction manuals
Maintenance service.

To make sure all is properly covered then, many purchasers today have developed their own checklists of items to be included on purchase orders for packaging equipment.

These vary in scope and completeness depending on the complexity and type of machines usually bought. No matter how detailed however, they are a sensible approach and they avoid headaches and heartaches later on.

Many machine manufacturers spend a great deal of effort to publish complete and detailed specifications on their machines, so the purchaser will know what is standard "finish and furnish" and can negotiate changes and special features, if he needs them, to suit the machine to his requirements. Regarding the cost of special modifications to standard machines, most of us in the machinery business build standard models to exact specifications and to sales forecasts. Our prices are figured accordingly.

On a certain model, for example, we may instruct our shop to build these in groups of five and we may have eight or ten groups a year of this one model scheduled. On this basis, and with the standard furnish, we know we can sell the mfor $5750 each. Now, if you are a pickle packer for example, and need extra stainless steel provisions, or want an epoxy resin paint to prevent corrosion, or some other special feature, you can see that we lost some flexibility in delivery. We are going to have to schedule a machine that is not yet assembled in order to fit in the extra stainless parts instead of the standard cold rolled steel that is already in the assembled group. There is going to be added cost to us also for putting the special stainless steel parts through our machine shop. Naturally then, we are going to have to make added charges to you in turn. Similarly with the special paint, we can't spray, prime our castings for your machine in the usual way. Epoxy paint must go on bare metal, again special handling and added cost result.

Let me emphasize that the average machine manufacturer is not reluctant to make changes, he just expects you to understand that it takes time, and costs money, frequently much more than what might appear to be involved in a relatively modest change.●

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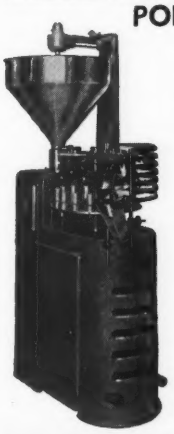

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HIGH DOSAGE VITAMINS

(*Continued from page 714*)

tumor, a nonmalignant neoplasm, caused by a virus. The successes with the new vitamin A therapy have established that a localized ultra-high concentration of at least one vitamin is effective against at least one virus disease, in fact, against one of the very few human tumors known to be caused by a virus.

A new pharmacologic "modality" has taken sudden rise. Vitamin pharmacology differs from hormonal pharmacology in that the vitamins are nutrients, metabolites not produced by the human body, whereas hormones are metabolites synthesized by endocrines or neural tissue. Will vitamin pharmacology exceed in significance the vast system of clinical uses of hormones? Research alone can give the answer to this fascinating question.

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(*Continued on page 798*)

CARBOPOL COSMETICS

(*Continued from page 763*)

Procedure: Carefully disperse the Carbopol 934 in the water which has been heated to 70°C. Add the Ultrawet 60 L and triethanolamine with gentle stirring to avoid foaming. Add the glyceryl monostearate as a melt and carefully disperse this in the mix. Cool the creme to 30°C. Add perfume at 45-50°C.

A control sample, prepared without the Carbopol 934 and triethanolamine, had a *p*H of 7.1 and a Brookfield, 20 rpm, viscosity of 400 cps. By including Carbopol 934, the creme had a final *p*H of 6.5 and a viscosity of 6320 cps (Brookfield, 20 rpm). Upon aging, the Carbopol-bodied formulation had superior whiteness and stability without foam loss.

Water-Alcohol Gels

Carbopol 940 has made possible a new class of cosmetics with unusual esthetic appeal—sparkling clear water and water-alcohol gels. These gels are also marked by the usual Carbopol characteristics of being easily handled and indefinitely stable.

In cosmetic gels, Carbopol 940 is preferred to Carbopol 934 because of the superior clarity of Carbopol 940 gels. These clear gels are subject to degradation by ultra violet radiation.

Alcohol systems require careful selection of neutralizing agent, but of the many amines available, mono- and di-isopropanol amine, di-2-ethylhexylamine and triethylamine are most useful. The following formulations are typical examples of cosmetic hydro-alcohol gels:

After-Shave Gel

	By weight
Ethanol (SD-40)	45.0
Water	53.0
Carbopol 940	1.0
Menthol	0.2
Di-isopropanolamine	0.8

Procedure: Dissolve the menthol in the alcohol and then add the water. Disperse the Carbopol 940 until a thin solution without lumps is obtained. Reduce mixer speed and slowly add the di-isopropanolamine. A crystal clear gel will form as the amine dissolves. It has a viscosity of 30,950 cps (Brookfield, 20 rpm) yet it flows easily under slight stress. The latter property allows tube packaging of these attractive gels.

Hair Grooming Gel

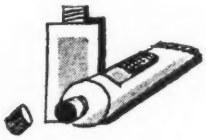
Occasionally a slight change in procedure is necessary if the ingredients are not water soluble, as in the following recipe:

	By weight
Ethanol (SE-40)	63.5
Carbopol 940	2.0
Isopropyl palmitate	18.0
Ethoxylan 100 (lanolin derivative)[3]	9.0
Di (2-ethylhexyl) amine	2.0
Water	5.5

Procedure: Disperse the Carbopol 940 in the alcohol as previously described. Add the isopropyl palmitate and Ethoxylan 100. A precipitate will slowly form. Blend in the di (2-ethylhexyl) amine. The precipitate will dissolve and the mix will become a thin.

(*Continued on page 811*)

[3]N. I. Malmstram and Company, Brooklyn 22, N. Y.



Advancing Therapy

Mucolytic Agent

Because expectorants are disappointing in increasing the amount of sputum or reducing its viscosity, interest has been shown recently in substances which reduce sputum viscosity by a direct physical or enzymatic action when given by aerosol-inhalation.

The ideal mucolytic agent, would reduce the viscosity of mucoid sputum more effectively than a simple water aerosol, and yet be well tolerated and inexpensive.

There is good evidence that when polysaccharides are exposed to the action of a reducing agent in the presence of molecular oxygen, depolymeriation of the polysaccharide molecule occurs with a striking and rapid reduction in viscosity. This reaction is accelerated by cupric ions. As the sputum mucoprotein complex contains approximately 50 per cent of polysaccharide, it was thought possible that this reaction might reduce the viscosity of mucoid sputum. This application to the problem of viscid bronchial secretion has not been previously studied. A tablet containing 100 mg. ascorbic acid, 70 mg. sodium percarbonate, and 0.2 mg. copper sulfate is now available commercially ('Ascoxal,' Astrapharm Ltd.). This paper by K. N. V. Palmer (*The Lancet* 1961, 802) reports experiments to assess its value as a mucolytic agent in chronic bronchitis.

Experiments demonstrate that ascoxal solution is a very effective mucolytic agent both *in vitro* and *in vivo*. The mean reduction in sputum viscosity after the aerosol inhalation of one tablet dissolved in two ml. of water was 52.7 per cent, which compares favorably with that of 21.5 per cent obtained after the inhalation of a water mist for one hour.

Ascoxal is well tolerated. None of the patients reported any side-effects and it has since been given to a further 23 patients with chronic bronchitis (1-2 tablets in 2-4 ml. water thrice daily for up to a month) without the development of any side-effects.

To obtain satisfactory results, it is essential that an effective nebulier be used because the particles of the aerosol mist must be small enough to penetrate the bronchioles. For this reason, hand inhalers which give a mist of variable droplet size are not recommended and aerosol inhalation should be by an apparatus which gives a fine "dry" mist.

Insect Birth Control

U S D A's Agricultural Research Service has found more than 70 chemicals, among several thousand screened, that affect insect reproduction. Some of these compounds sterilize female insects only. But the most promising, so far is a group of ethyleneimines that sterilize both male and female insects. One of these chemicals is Olin Mathieson's hexakis (1-aziridinyl) phosphonitrile which the company expects to have ready for commercial markets in 1964.

During tests with the ethyleneimines against houseflies, made on a small uninhabited key off the Florida coast, the chemosterilants nearly wiped out the fly population. Entomologists applied a bait containing the chemical to a heavily infested refuse dump once a week for five weeks. At the end of the fifth week, only a few flies could be found, and 99 per cent of those captured were sterile.

ARS doesn't really expect to be able to eradicate houseflies unless it discovers a highly successful attractant for them. However, houseflies have a short life span and are easily handled in the lab.

A safe chemosterilant, used in the field, offers several advantages over other methods. It is more economical and faster than the radiation sterilization of male flies used to eradicate the screw worm from the southeast states a few years ago. The job of rearing, sterilizing, and releasing the insects as well as problems of reinfestation would be eliminated.

Some long-range testing lies ahead before the full impact of chemosterilants can be measured. But chemicals will be developed to control insect pests by interfering with their reproduction instead of by direct kill. Next step in the process is to establish that the chemosterilants present no hazard to man or to beneficial insects, fish, or animals that might be exposed to them. *C.&E.N.*

New Hypotensive

Taylor recently described a new, unusually p o t e n t, nonhydrazine, monoamine oxidase inhibitor: pargyline hydrochloride (MO-911).

The purpose of the present study by J. M. Bryant et al (*J.A.M.A.* 178: 406, 1961) is to evaluate the hypotensive changes of pargyline hydrochloride in ambulatory hypertensive outpatients in relation to long-term control of blood pressure values and to compare them with those observed with sulfonamide diuretics.

Pargyline hydrochloride is a member of a different chemical series from the hydrazide type of monoamine oxidase inhibitors in current clinical use. Chemically, it is N-benzyl-N-methyl-2-propynylamine hydrochloride and is readily soluble but unstable in aqueous solution.

The potency of pargyline hydrochloride is seven to ten times that of iproniazid, as determined by *in vitro* tests and by intrapertitoneal injection. When administered orally its effect is only approximately half of that with parenteral administration, thus suggesting partial absorption. Also, its effect is demonstrable up to ten days after a single dose.

Chronic toxicity studies of pargyline hydrochloride in animals have shown no organic changes attributable to this drug nor abnormalities in blood, urine, or hepatic or renal function tests.

Seventeen women and four men with long-standing, stable hypertension were treated, as outpatients,

with pargyline hydrochloride for two to nine weeks.

Potent antihypertensive effects were demonstrated with pargyline hydrochloride in this group. However, early in this study, relatively large initial dosages used produced a high incidence of severe hypotensive and symptomatic effects. By discontinuing the large initial doses from several days to two weeks and restarting pargyline hydrochloride in amounts of from 12.5 to 25 mg. a day, with subsequent increments of 25 mg. at weekly or bimonthly intervals, satisfactory hypotensive results were achieved with milder and less frequent side-effects.

Although these preliminary clinical experiences suggest that pargyline hydrochloride may have a potentially greater antihypertensive effect than that of the sulphonamides, considerable additional observation is indicated before its practical applicability is fully assessed. This latter suggestion is of particular importance in regard to the long-term renal, hepatic, and neurologic effects, as well as the problems of tolerance.

Flexin Withdrawn

McNeil Laboratories, Inc., is withdrawing from the market Flexin zoxazolamine and all Flexin-containing products.

This action, which also covers Flexilon, Flexilon-HC, and Triurate, is being taken because certain clinical reports and observations submitted to the company by physicians suggest that Flexin may be associated with the development of hepatitis in an occasional hypersensitive patient.

Live Virus Measles Vaccine

A live virus measles vaccine developed by Lederle Laboratories, has proved to be more than 98 per cent effective in clinical tests involving 588 children. The vaccine was developed from a strain of measles originally isolated by Dr. John Enders in 1954.

Dr. Floyd Markham, senior research fellow in virology at Lederle, reported to the American Public Health Association meeting that more than one-half of the vaccinated children were less than two years old, and 42 per cent were under one year of age. The vaccination program was carried out at 15 different locations in the United States and abroad.

The vaccine made from the live attenuated measles virus is injected into the body to stimulate and build up its defenses against the disease. It produces mild measles-like reactions, lasting only a day or two.

The initial tests with the Lederle live vaccine were conducted at Sea View Hospital, Staten Island, New York, and were encouraging. A report of the clinical study showed that children who demonstrated no antibodies prior to inoculation, all responded to the vaccine.

Since then, relatively larger-scale clinical tests in Texas, Kansas, New York, and Tennessee have been made with the Lederle live vaccine. The Tennessee study includes infants, six to fifteen months old. The Lederle vaccine also is being tested in Spain.

Killed Virus Measles Vaccine

A double blind field trial with a killed virus measles vaccine indicated a vaccine effectiveness of 96 per cent after three injections. The study was conducted with kindergarten and first grade children in 15 schools in Buffalo, N. Y., by a team from the Erie County Health Department and the University of Buffalo School of Medicine.

The vaccine, was developed by a research team headed by Dr. Joel Warren of the Department of Biologics Research of Chas. Pfizer & Co., Inc., Terre Haute, Ind., from the Edmonston strain isolated by Dr. John Enders. It was given to 330 children. Another 319 children received a placebo.

Three doses of the vaccine were administered to 296 children, the first two injections a week apart, and the third three weeks later. Six children received only one injection, and 28 received two doses of the vaccine. A similar schedule was followed in the placebo group.

No systemic reactions were observed after any of the injections. A few children complained of mild soreness at the site of the injection.

A minimum estimate of the effectiveness of the vaccine, determined by comparing the number of children in each group who contracted measles regardless of the number of injections received was found to be 65 per cent. However, the investigators point out, if the effectiveness is measured by the number of children in each group who contracted measles 14 days or more after the third injection, the figure is 96 per cent. The incubation period for measles is about 14 days. Only one case of measles was found during this period in the vaccine group as opposed to 25 in the control group.

Oral Polio Vaccine

A trial of living attenuated poliovirus vaccine (Sabin) was made with 409 infants by the Public Health Laboratory Service and reported to the Poliomyelitis Vaccines Committee of the Medical Research Council (*Brit. Med. J.* 1961, p. 1037)

Infants of six to 12 months of age were given by mouth the living attenuated poliovaccine of Sabin according to three different schedules of dosage.

The investigation was carried out by 17 different public health laboratories in England during 1960, each laboratory using all three schedules.

The antibody responses to type 2 virus was excellent in all three groups, but in group one only about half the infants responded to types 1 and 3.

A few of the infants were re-fed with trivalent or monovalent vaccine six months after their last dose. In general, the virus failed to establish itself in the gut of infants that had given a good antibody response to the original vaccine, whereas in those that had not responded satisfactorily colonization of the gut occurred uniformly.

The results of this investigation show conclusively that, (*a*) judged by the neutralizing antibody response, infants of six months and over can be immunized satisfactorily by the oral vaccine provided that three doses of the trivalent or monovalent vaccine are given; (*b*) the antibody content of the blood was well maintained six months after the last dose of vaccine, and judged by the results from Nottingham the antibody levels were still satisfactory 12 months after vaccination; (*c*) antibody is produced only when the virus is able to establish itself in the gut and remain there for a sufficient length of time; and (*d*) the antibody content of the blood serum after the Sabin vaccine is of the same order as that after three doses

(*Continued on page 810*)

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ADVANCING THERAPY

(*Continued from page 808*)

of Salk vaccine.

Forms of Medication

In a survey by *Modern Medicine* of the 1960 prescription market, three-fourths of the prescriptions called for solid dosage forms. Thus, 45.2 per cent of prescriptions called for tablets, 17.9 per cent for capsules, 4.6 per cent for ointments, 5.5 per cent for time medication capsules and tablets, 1.2 per cent for suppositories, 0.5 per cent for troches, 0.4 per cent for powders, 0.5 per cent for other solids to total 75.8 per cent. For liquids, syrups were mentioned in 6.2 per cent of prescriptions, suspensions in 5.5 per cent, drops in 4.5 per cent, elixirs in 2.7 per cent other liquid forms in 5.3 per cent, for 24.2 per cent of prescriptions calling for liquids.

Mer-29 and Dehydrocholesterol

Avigan et al. demonstrated that inhibition of sterol biosynthesis by Mer-29 (Triparanol) results in accumulation of 24-dehydrocholesterol in rat livers. 24-Dehydrocholesterol has been identified by Steinberg in the blood of humans given Mer-29. Little is known of the biological activity of this sterol in man except that it does not appear spontaneously in human blood. The use of Mer-29 for the treatment of hypercholesterolemia in man makes it important to learn if 24-dehydrocholesterol accumulates in blood vessel walls as well as in the blood. Materials examined were obtained from a patient who had familial hypercholesterolemia and congenital aortic stenosis and who had died from a myocardial infarction. The patient had received 250 mg. per day of Mer-29 for 79 days, and post mortem examination revealed that extensive atheromatosis covered 90 per cent of the area of the aortic wall.

The report by D. H. Blankenhorn (*Proc. Soc. Exptl. Biol. Med.* 108: 43, 1961) indicates that 24-dehydrocholesterol accumulated in human blood vessel walls and it seems probable that treatment with Mer-29 was responsible. Although 24-dehydrocholesterol was not demonstrable in the extensive atheromatosis, it accounted for 13 to 16 per cent of the sterols in normal aortic wall. Because these vessels were examined only 79 days after onset of therapy with Mer-29, the presence of 24-dehydrocholesterol in normal wall but not in atheromas seems best explained by a more rapid accumulation in normal wall. However, it is possible that 24-dehydrocholesterol may only accumulate in normal vessel walls.

Benzydroflumethiazide Diuretic

Benzydroflumethiazide (Naturetin), a new and more potent diuretic agent (on a milligram-for-milligram basis), appears to be a useful and effective addition to the growing family of benzothiadiazine drugs, according to R. W. P. Achor et al (*N.E. J. Med.* 265: 457, 1961). The faults and virtues common to these drugs are shared by benzydroflumethiazide.

Twenty-one ambulatory patients with mild to moderately severe arterial hypertension were treated, as part of a double-blind study, with benzydroflumethiazide as the sole antihypertensive agent. This new benzothiadiazine diuretic, taken in a dose of five mg. twice daily, produced a significant though modest reduction in mean systolic and diastolic blood pressures. During treatment with benzydroflumethiazide substantial decreases occurred in the concentrations of serum potassium and plasma chloride. At the same time there was a significant rise in the serum uric acid and in the carbon dioxide combining power of plasma. No change occurred in the level of serum sodium, and only a slight increase was noted in the concentration of blood urea. The drug was well tolerated by most patients. Although disturbing side effects were encountered, these were relatively infrequent and usually transient and did not prevent any patient from continuing full use of the drug in a day or two.

New Antibiotics

Actinospectacin, produced by Upjohn by fermentation with *Streptomyces spectabilis* and by Abbott with *Streptomyces flavopersicus*, was discussed at the Interscience Conference on Antimicrobial Agents and Chemotherapy in New York.

The non-toxic antibiotic prevents the growth of a wide variety of disease-causing bacteria, including some bacteria common in urinary tract infections that are not easily controlled by existing antibiotics.

It is soluble in water, making it possible to produce aqueous solutions for injection, and crystalline salts of the antibiotic are readily recovered from the fermentation broth.

Pharmacologic studies in animals showed that solutions of the antibiotic can be injected into the muscle with very slight irritation and are absorbed and excreted rapidly. The antibiotic also can be injected into the vein, but is expected to be much less effective when given by mouth.

Preliminary subacute toxicity tests indicated the relative safety of the drug.

When a group of patients with urinary tract infections received actinospectacin, all of them showed clinical improvement, but resistant organisms developed quite rapidly in some of these patients.

In vitro studies of the drug's effectiveness against over 300 strains of staphylococcus disease organisms, showed 90 per cent of them to be sensitive to actinospectacin, with some indication in test tube and live animal experiments that the drug is more effective as a bacteriostatic agent than as a bactericidal agent.

Spokesmen for The Upjohn Company, who reported development of the new compound earlier this year, said that it has been under extensive clinical investigation. It is too early, they said, to determine the final role of actinospectacin in the treatment of infectious diseases.

Discovery of a new antibiotic, active against human cancer cells in laboratory tests and a variety of tumors in mice and hamsters, was reported by scientists of The Upjohn Company.

The compound, pactamycin, was the subject of three papers presented. It is produced in a fermentation process by the micro-organism Streptomyces pactum which appears to be a new species of actinomycette culture. The pure antibotic has been found to be active not only against tumors L-1210 and Ca-755 but eight other animal tumors as well, he said.

Pactamycin's cell-killing potency requires that it be tested in humans at very low dosage at the outset. Toxicity of the drug has been studied in a number of animal species. Preliminary clinical trials of the drug in human cancer patients is being arranged. •

(*Continued from page 804*)

cloudy solution. Add the water with controlled agitation to minimize air entrapment. The solution will become a clear, thick gel whose viscosity (Brookfield, 20 rpm) is 19,500 cps. Add perfume and color as desired. Here, the addition of the water as the last step avoids complications from ingredients which are insoluble in water.

Sun Screening Gel

The same technique is useful in the following formulation:

	By weight
Ethanol (SD-40)	48.0
Carbopol 940	1.0
Escalol 106 (Glyceryl-p-amino-benzoate)[4]	3.0
Monoisopropanolamine	0.09
Water	47.91

Procedure: Disperse the Carbopol 940 in the alcohol, and then dissolve the Escalol 106 in the dispersion. Slowly add the monoisopropanolamine. This will give a thin but very cloudy solution. Slowly add water and stir carefully to avoid air entrapment; the solution will clear up and thicken. Add perfume and color as desired. This formulation gives a clear gel with a viscosity of 19,500 cps (Brookfield, 20 rpm) at a *p*H of approximately 5.7.

Insect Repellent Gel

Meta delphene, an insect repellent, can be thickened in several ways with Carbopol resins. The following recipe produces a very thick, clear gel with a slight yellow tint:

	By weight
Meta Delphene[5]	200
Ethanol (SD-40)	20
Carbopol 940	10
Ethomeen C-25	5

Procedure: Disperse the Carbopol 940 in the meta delphene. Add the Ethomeen C-25. No apparent reaction will occur. Lastly, slowly add the Ethanol with mild agitation. The whole mass will slowly gel.

Liquid Makeup

The following formulation demonstrates the utility of Carbopol 934 as a combination emulsifier and suspending agent in an oil-in-water emulsion-suspension.

	By weight
Mineral oil	300
Water	550
Carbopol 934	3.0
Sodium hydroxide (10% solution)	12.0
Stearylamine (0.68 gm/gm 934)	2.1
Iron oxide (Fe_2O_3)	15
Zinc oxide	135

(*Continued on page 822*)

[4] Van Dyke and Co., Inc., Belleville 9, N. J.
[5] Hercules Powder Co., Naval Stores Dept. 1900 Fisher Bldg., Detroit 2, Mich.

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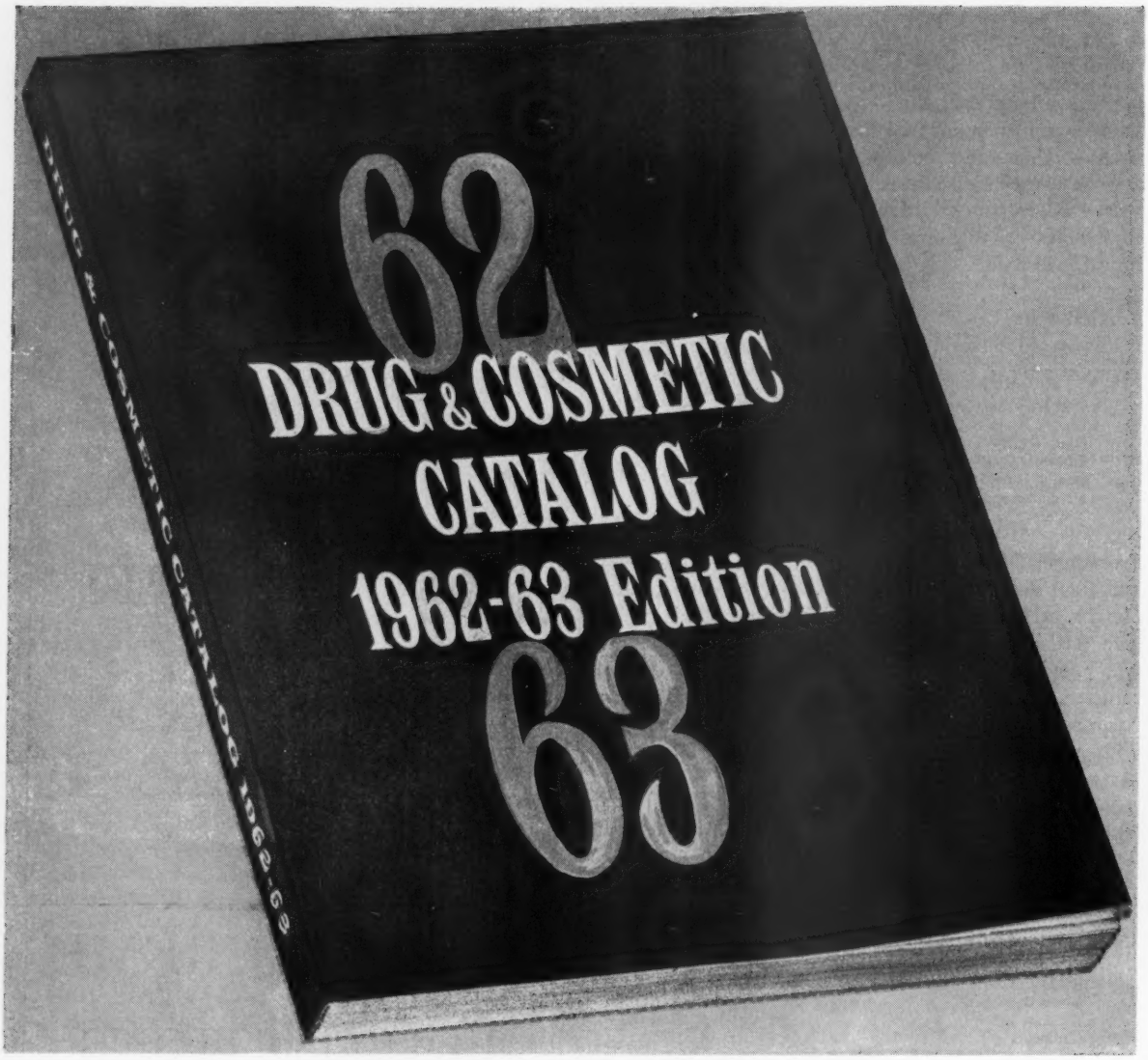

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Skin Research

Topical Medicinal Dosage Forms

At the 1961 British Pharmaceutical Conference, J. W. Hadgraft presented a paper on "Pharmaceutical Formulation in Skin Medication" which described some of the materials used to formulate dermatologic preparations and considered some of the problems encountered in their use.

Lotions are usually simple aqueous solutions or suspensions which present little difficulty in formulation. Water-soluble medicaments are probably best applied to the skin in this form but it may be necessary to add other ingredients to modify the behavior of the lotion on the skin. Methylcellulose or sodium carboxymethylcellulose together with glycerol may be added to form a water-soluble plasticized film which will help to localize the effects of the lotion and hold the active medicament in contact with the affected area.

Solubility problems may arise in the formulation of lotions, for example, hydrocortisone may be formulated in liquid preparations using a combination of cetomacrogol and self-emulsifying monostearin as the suspending agent. If, however, it is required in true solution this can be achieved by using a water-miscible vehicle such as liquid macrogol.

Suspending agents are used to promote the dispersion of insoluble powders in lotions. Bentonite is used for this purpose in calamine lotion but may produce thixotropic suspensions which are difficult to pour and froth excessively on shaking. The addition of sodium citrate has been suggested to overcome these difficulties. Other ingredients in the preparation may influence the performance of suspending agents. Sorbitol and glycerol lower the gel point of methylcellulose so that preparations combining these substances may become cloudy under warm conditions and change from fluid, easily-pourable liquids into opaque, semi-solid gels. Propylene glycol, on the other hand, raises the gel point of methylcellulose. The addition of polyhydric alcohols to solutions of hydrophilic gums increases their viscosity and, if the concentration is sufficiently high, interferes with hydration of the gum, and an otherwise pseudoplastic system may become plastic.

The division of *ointment bases* into emollient and protective types can no longer be maintained. Oils and waxes do not soften callous tissue and the effect of ointments on the pliability of the skin depends upon their ability to form a water-insoluble film on the stratum corneum thus reducing the rate of loss of moisture from the skin. Hydration of the keratin layer by moisture from the underlying tissues is thus encouraged and it is for this reason that the skin is rendered more pliable.

Mineral oils—Mineral oils are bland, inert preparations which are not absorbed by the skin. They have the advantages of chemical stability and do not react with the substances incorporated into ointments. A range of proprietary mineral waxes are now available which have distinct advantages over paraffin. They have been described as "microcrystalline" or "amorphous" waxes and because of their internal structure they are superior to paraffin as blending agents.

Polyethylene-mineral oil combinations—Examination of the properties of wax-thickened mineral oils has suggested the use of hydrocarbon polymers as gelling agents for mineral oil. A proprietary base, developed on this principle, is prepared by dissolving polyethylene in mineral oil and rapidly cooling the solution by pouring on to a water-cooled metal surface. Under these conditions, supercooling occurs and the polyethylene is very rapidly precipitated in a colloidal form. The ointment bases obtained are non-reactive, have reliable consistency and show little variation in viscosity over a range of temperature from five to 45 C.

Wool fat and derivatives—Lanolin is more readily absorbed by the skin than the paraffins and may be used in ointments when deeper penetration is desired. It shows freedom from rancidity and readily absorbs water to form stable water-in-oil emulsions. Its main disadvantages are its odor, stickiness on the skin and liability to show surface discoloration. Some of these disadvantages are overcome by combining wool fat with petrolatum as in simple ointment. Wool-alcohols may be combined with the paraffins to produce hydrophilic bases like ointment of wool-alcohols. But it has a number of disadvantages since it is a mixture of uncertain composition and is not readily standardized. On storage, it is liable to surface oxidation with resultant loss of its emulsifying power. Autoxidation may be

inhibited by addition of 500 p.p.m. of butylated hydroxyanisole.

In recent years, other derivatives of wool fat have become available. Hydrogenation produces a white solid wax melting at about 50°C. and containing dihydrocholesterol with other hydrogenated sterols and saturated alcohols. Hydrogenated wool fat may be combined with mineral oils and an ointment base has been suggested containing 70 per cent. of the wool fat preparation with 30 per cent of mineral oil. It spreads smoothly on the skin surface, producing a less greasy film than unmodified wool fat. Reaction between lanolin and ethylene oxide produces a water-soluble wax, melting at about 40°C. It is a nonionic surface-active agent which promotes the formulation of oil-in-water emulsions and is also capable of acting as a solubilizing agent.

Vegetable oils and related substances—The vegetable oils have penetrating properties which are intermediate between those of the mineral oils and the animal fats. They are liable to become rancid on storage and this may be overcome by the inclusion of an antoxidant. When used in dermatological vehicles, the possibility of these substances having skin sensitizing properties must not be overlooked. The acetoglycerides are a group of modified natural oils and fats obtained by substituting acetate groups in place of one or more of the fatty acid groups in the triglycerides. Acetoglycerides are obtained ranging from mobile oily liquids to solid waxes. They have a microcrystalline structure and produce thixotropic mixtures when blended with waxes and oils. Such mixtures retain their consistency over a wide range of temperatures. The acetoglycerides are stable to heat but can oxidize and commercial grades contain an antoxidant. They produce a film on the skin which is less greasy and occlusive than the mineral oils and wool fat. Synthetic esters of fatty acids have also been used in the cosmetic industry to replace the natural vegetable oils. They have the advantages of more constant composition, lower acid values and they become less readily rancid than the natural oils. They include isopropyl myristate, isopropyl palmitate and isopropyl palmitate-stearate.

Emulsification of an oil does not appear to enhance its ability to penetrate the skin. When a *cream* is applied to the skin, the aqueous phase evaporates leaving a film of oil, the penetration of which depends upon the nature of the oil phase and does not differ significantly from that obtained when the oil is applied alone. Creams containing mineral oils produce films which remain on the skin surface whereas those containing vegetable oils or wool fat produce films which slowly penetrate the skin. It should be noted that the concentration of active medicaments is greater in the residual film than in the original preparation. The rate of release of medicaments from emulsified bases is affected by the particular phase in which they are soluble.

Oily creams — The only official base of this type is oily cream. Its poor stability, particularly when combined with a number of commonly used medicaments, leaves a need which at present is not completely filled by an official preparation. The fatty acid esters of the anhydrides of polyhydric alcohols may be of value in the formulation of stable oily creams. Sorbitan mono-oleate and sorbitan sesquioleate are typical representatives which are soluble in vegetable and mineral oils and dispersible in water. They are free from irritant properties when applied to the skin and can be combined with soft paraffin and wool fat to form oily creams which are stable in the presence of resorcinol, sulfur, ammoniated mercury, solution of coal tar and salicylic and benzoic acids.

Aqueous creams — Anionic and catonic emulsifying agents such as self-emulsifying monostearin, emulsifying wax and cetrimide emulsifying wax are incompatible with electrolytes in high concentration and with organic ions bearing a charge of opposite sign to the surface-active compound.

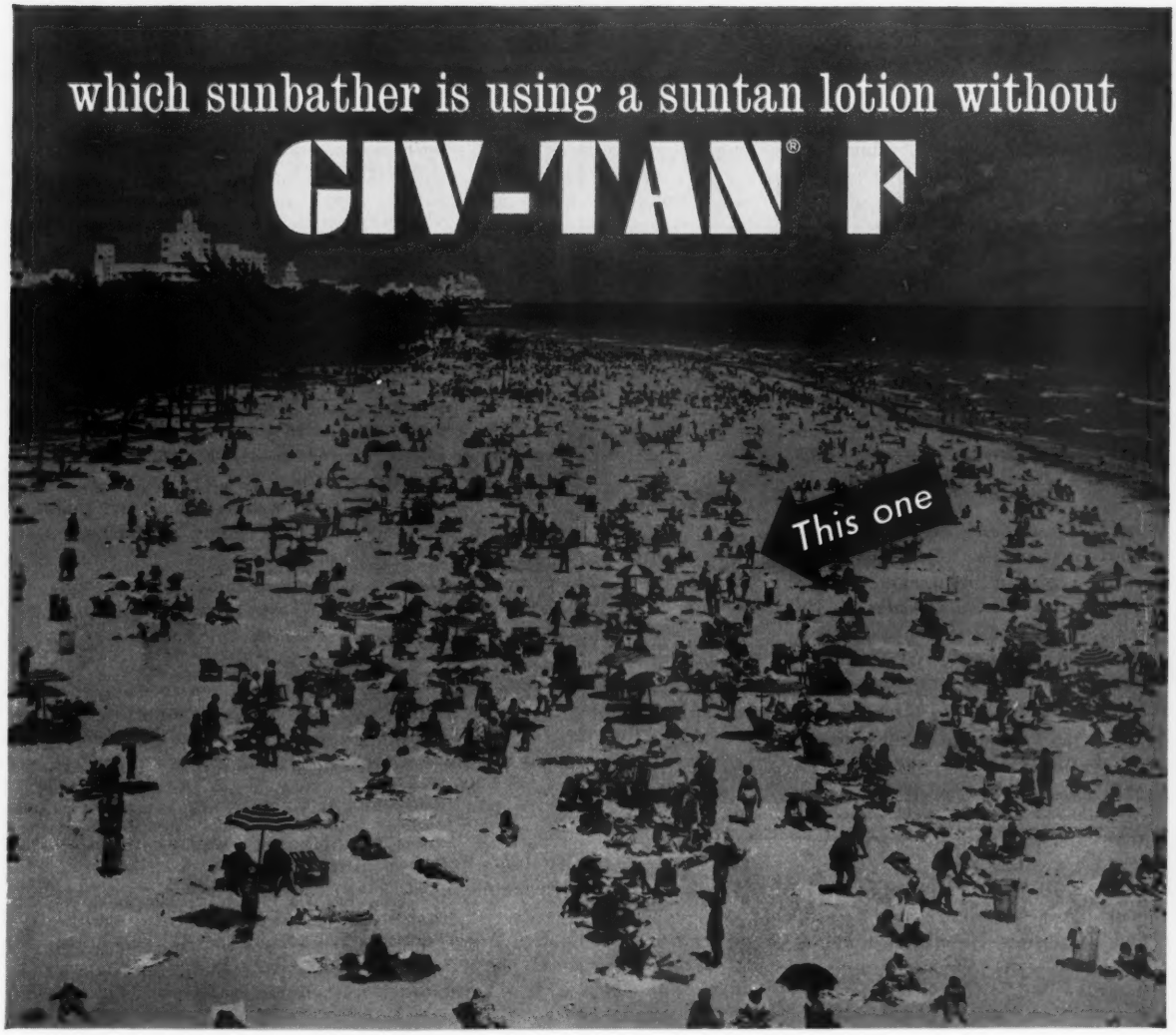
Nonionic emulsifying agents possess both hydrophilic and lipophilic groups. The hydrophilic group is usually an ethylene oxide chain which can be combined with numerous lipophilic radicals. Compounds of this type may be polyethylene glycol ethers of fatty alcohols or esters of polyethylene glycol and a fatty acid. They are incompatible with phenolic compounds with which they probably form compounds by hydrogen bonding. Although nonionic they possess a residual negative charge and may inactivate cationic medicaments such as the quaternary ammonium compounds.

A third type of nonionic emulsifying agent consists of the polyethylene glycol derivatives of the esters of fatty acids and the anhydrides of polyhydric alcohols. In the formulation of aqueous creams, a mixture of sorbitan monostearate and sorbitan monostearate polyoxyethylene derivative is used. By varying the proportions of oil-soluble and water-soluble derivatives in mixtures of this type a range of emulsifying agents of varying hydrophile-lipophile balance may be obtained.

Aqueous creams often support the growth of molds and bacteria and a preservative may be required to prevent contamination during storage. Creams containing anionic or cationic emulsifying agents may be preserved with chlorocresol or the esters of hydroxybenzoic acid. Aqueous creams containing the nonionic emulsifying agents present greater difficulties. Much evidence indicates that non-ionic surface-active agents are capable of interaction with preservatives thus reducing their activity.

Water-soluble ointments — Polyethylene glycols are used in the formulation of water-soluble ointment bases. The higher members of the series are unique substances in combining complete solubility in water with a wax-like consistency. They have been shown to be relatively free from skin sensitizing properties.

There is some evidence that medicaments may be more readily absorbed from polyethylene glycol bases than from paraffin bases and it may be necessary to reduce the concentration if macrogol ointment is substituted for a petrolatum base. Moreover, it has also been reported that the macrogols may increase the possibility of sensitivity reactions of diseased skin to the active medicament in ointments. Ointment bases containing the macrogols are hygroscopic and the surface may become moist on storage. They have only a limited use in the formulation of dermatological preparations but may be of particular value when it is desired to wash the preparations from the skin.



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COMING EVENTS . . . .

DECEMBER

7-10 American Medical Assn., clinical meeting, Dallas Auditorium, Dallas, Texas

9 The Proprietary Assn., Research and Scientific Development meeting, Hotel Roosevelt, New York City (Dr. Howard A. Prentice, 810 18th St., N.W., Washington 6, D.C.)

12 Chicago Perfumery, Soap and Extract Assn., Inc., annual business meeting and luncheon, Sheraton Towers. (Edward F. Lasch, Tenn. Products and Chemical Corp., 200 S. Michigan Ave., Chicago 4, Ill.)

14 Pharmaceutical Advertising Committee meeting, Roosevelt Hotel, N. Y. C.

16 Chicago Perfumery, Soap and Extract Assn., Inc., Christmas Ball, Conrad Hilton Hotel. (See above.)

20 American Society of Perfumers, closed meeting, Advertising Club, 35th St. & Park Ave., N. Y. C. (A.S.P., 630 Fifth Ave., N. Y. C. 20).

24 Manufacturing Chemists' Assn., Statler Hilton Hotel, New York City (M. F. Crass, M.C.A., 1825 Connecticut Ave., N.W., Washington 9, D. C.)

JANUARY 1962

22-25 Plant Engineering & Maintenance Show, Convention Hall, Philadelphia, Penna.

FEBRUARY 1962

27 Annual Joint Pharmacy Seminar, McGregor Memorial Conference Center, Wayne State University, Detroit 2, Michigan. (Mary L. Zeppa, arrangement chairman, College of Pharmacy, Wayne State University, Detroit 2, Mich.)

MARCH 1962

8-10 Beautyrama, sponsored by the *Philadelphia Inquirer*. Sheraton Hotel, Phila., Penna. (Jack Trexler, National Advertising Department, *Philadelphia Inquirer*, Phila., Penna.)

20-29 American Chemical Society, annual spring meeting, Washington, D.C. (A.C.S., 1155 Sixteenth St. N.W., Washington 6, D.C.)

25-30 American Pharmaceutical Association, annual meeting, Convention Center, Las Vegas, Nevada.

APRIL 1962

9-12 National Packaging Exposition, N. Y. Coliseum. (Packaging Exposition, c/o Clapp & Poliak Inc., 341 Madison Ave., N. Y. C. 17.)

25 Pharmacy Congress, St. John's University, Jamaica campus. (St. John's University, public relations office, Grand Central & Utopia Parkways, Jamaica 32, New York.)

30 National Symposium on Instrumental Methods of Analysis, Daniel Boone Hotel, Charleston, W. Va., to May 2.

MAY 1962

9 Toilet Goods Assn., Scientific Section meeting, Waldorf-Astoria Hotel, N.Y.C. (T.G.A., 1270 Avenue of the Americas, N.Y.C. 20)

14-16 Chemical Specialties Manufacturers Assn., annual midyear meeting, Drake Hotel, Chicago, Ill. (C.S.M.A., 50 East 41st St., N.Y.C. 17)

17-20 The Proprietary Association annual meeting, The Greenbrier, White Sulpher Springs, W. Va. (P.A., 810 18th St., N. W., Wash., D. C.)

JUNE 1962

10-13 National Industrial Pharmaceutical Research Conference, King's Gateway, Land O'Lakes, Wisc.

27-29 3rd Joint Automatic Control Conference—Sponsors: ISA, AICLE, AIEE, ASME, IRE. (Dr. A. S. Robinson, Kollsman Instrument Corp., 80-08 45th Ave., Elmhurst 73, N. Y.)

JULY 1962

2-5 Society of Cosmetic Chemists of Great Britain, Congress of the International Federation of Societies of Cosmetic Chemists, London, England.

17-19 Western Packaging Exposition, San Francisco Civic Auditorium (W.P.E., c/o Clapp & Poliak, Inc., 341 Madison Ave., N. Y. C. 17.)

AUGUST 1962

19-25 International Congress for Microbiology, Queen Elizabeth Hotel, Montreal, Canada. (Dr. N. E. Gibbons, Sec. Gen., VIII International Congress for Microbiology, National Research Council, Ottawa 2, Canada.)

SEPTEMBER 1962

9-14 American Chemical Society, fall meeting, Atlantic City, N. J.

13-15 Drug, Chemical and Allied Trades Association annual meeting. Pocono Manor Inn, Pocono Manor, Pa. (DCAT, 1 Liberty St., N. Y. C. 5)

16-20 National Association of Retail Druggists annual convention, Statler Hilton Hotel, N. Y. C. (NARD, 205 West Wacker Drive, Chicago 6, Illinois)

16-20 Pharmaceutical Analysis annual conference, King's Gateway, Land O' Lakes, Wisc. (Richard S. Strommen, Extension Services in Pharmacy, 301 Pharmacy Building, University of Wisconsin, Madison 6, Wisc.)

OCTOBER 1962

15-19 Instrument Society of America, International-Automation Conference and Exhibit, New York Coliseum, N. Y.

19-27 4th International Fair of the Plastics Industry, Dusseldorf, Germany.

29-31 15th Conference on Electrical Techniques in Medicine & Biology. Sponsors ISA, AIEE, IRE. (Dr. J. E. Jacobs, School of Medicine, Northwestern University, Chicago, Ill.)

DECEMBER 1962

5 Toilet Goods Association, Scientific Section meeting, Waldorf-Astoria, N. Y. C. (TGA, 1270 Ave. of the Americas, N. Y. C. 20)

27 Exposition of the Chemical Industries, New York Coliseum through Dec. 1 (E. K. Stevens, International Exposition Co., 480 Lexington Ave., N. Y. C. 17)

28 Society of Cosmetic Chemists, annual meeting and dinner dance, Biltmore Hotel, N. Y. C.

29 Toilet Goods Association, Scientific Section meeting, Waldorf-Astoria Hotel, N. Y. C. (T.G.A., 1270 Ave. of the Americas, N. Y. C. 20)

MARCH 1963

31 American Chemical Society spring meeting, Los Angeles, Calif. through April 5.

MAY 1963

12-17 American Pharmaceutical Association annual meetings, Miami Beach, Fla.

14-16 Toilet Goods Association annual convention (May 16, Scientific Section meeting), Waldorf-Astoria Hotel, N. Y. C. (T.G.A. 1270 Ave. of the Americas, N. Y. C. 20)

AUGUST 1963

25-30 American Chemical Society, fall meeting N. Y. C.

DECEMBER 1963

4 Toilet Goods Association, Scientific Section meeting, Waldorf-Astoria Hotel, N. Y. C. (T.G.A., 1270 Ave. of the Americas, N. Y. C. 20)

MARCH 1964

31 American Chemical Society, spring meeting (through April 9), Chicago, Ill. ●

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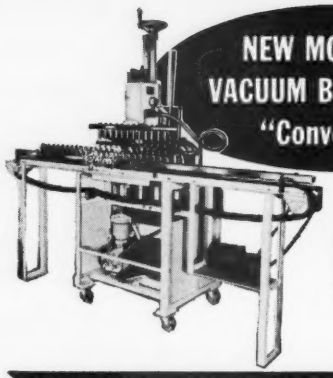

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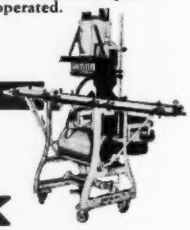

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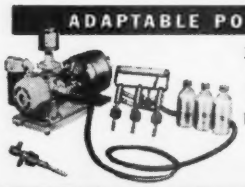

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Industry's Books . . .

Medical Pharmacology (Principles and Concepts) *by Andres Goth, M.D., Professor of Pharmacology, The University of Texas Southwestern Medical School, 551 pp., The C. V. Mosby Co., St. Louis, (1961), cloth,* **$11.**

It is the aim of this book to present current pharmacologic knowledge with particular reference to principles and concepts. Essential facts about important drugs are included, but a great saving of space is effected by eliminating a repetitious discussion of compounds which have little practical or theoretical importance. The emphasis of the book on concepts should make it particularly useful to students and practitioners.

Filtration, *by George D. Dickey, Consultant, 353 pp., Reinhold Publishing Corp., New York, (1961), cloth,* **$12.**

This is a modern account of solid-liquid separation in the wet processes: water, industrial products and wastes. The book includes a comprehensive study of filtering, including a brief summation of pertinent mathematical theories and formulas, and a short history of filtration development by gravity, vacuum, pressure and centrifugal force. Current design and construction of the various classes of filters are presented and illustrated, and operating practices and resultant data are included.

WHO Chronicle, *Vol. 15, No. 8—August 1961, published by World Health Organization, Geneva,* **$1.**

This volume deals with: Gonorrhoea Today, Progress in Immunization, Compulsory or Voluntary Vaccination, BCG Vaccination Programme, Names for Pharmaceutical Preparations.

Current Trends In Scientific Research, *by Pierre Auger, Special Consultant, 243 pp., available from the Columbia University Press, New York, cloth,* **$6.75.**

Unesco's *Current Trends In Scientific Research* was published in 1961 by the United Nations, New York, and by the United Nations Educational, Scientific and Cultural Organization, Paris. It is a survey of the main trends of inquiry in the field of the natural sciences, the dissemination of scientific knowledge and the application of such knowledge for peaceful ends.

A Patent Manual For Scientists And Engineers, *by George M. Naimark, Ph.D., Director of Scientific Services, Burdick & Becker, Inc., 108 pp., Charles C. Thomas—Publisher, Springfield, Ill., (1961), cloth,* **$5.50.**

This book provides scientists and engineers (and students of these subjects) with enough information on patent law and closely related matters to enable them to function effectively in their fields.

Pressurized Packaging (Aerosols), *by A. Herzka, B.Sc., Consultant, London, and J. Pickthall, F.R.I.C., Director and Chief Chemist, International Flavors and Fragrances (Gt. Britain) Ltd., Second Ed., 471 pp., Academic Press Inc., New York, cloth,* **$15.**

This work has been brought up-to-date since the first edition published in 1958. The book's 21 chapters deal with propellants, containers, valves, filling methods, laboratory procedures, emulsified systems, and perfumes. There is a complete section containing more than 200 formulations covering such widely different items as food, insecticides, cosmetics, paints and varnishes and medicinal preparations.

Physical Chemistry Of Macromolecules, *by Charles Tanford, Professor of Physical Biochemistry, Duke University, 710 pp., John Wiley & Sons, Inc., New York, (1961), cloth* **$18.**

This book treats, in turn, the major areas of physical chemistry, molecular structure with emphasis on X-ray diffraction, molecular statistics, thermodynamics, light scattering, transport processes and viscosity. electrostatics, and equilibria and kinetics of reactions.

Handbook Of Chemistry And Physics, *43rd Ed., by Hodgman, Weast and Selby, 3467 pp., Chemical Rubber Co., Cleveland.* **$12.**

This greatly improved edition reflects the publisher's outstanding achievement of annually producing a one-source reference for complete and up-to-date facts on mathematics, physics and chemistry. This edition contains nearly 80 pages of new material.

The Extra Pharmacopoeia, *Martindale, Supplement 1961 to Volume II, 23rd Ed. 1955, and Volume I, 24th Ed. 1958, Published by direction of the Council of The Pharmaceutical Society of Great Britain, 315 pp., The Pharmaceutical Press, London,* **$6.50.**

Contains additional information on new drugs (over 200) and new proprietary medicines (over 800) introduced since Volume I, and the complete revision of formulae of publicly-advertised medicines (over 1000) dealt with in Volume II.

The Veterinary Annual, *Editor: W. A. Pool, M.R.C.V.S., Second Year 1960, Published by John Wright & Sons Ltd., distributed in the United States by The Williams And Wilkins Co., Baltimore, 358 pp., cloth,* **$8.75.**

In the forcing of animals to adjust themselves to factory-like routines great stresses must be felt. All these factors impose the need for ever more technical and expert diagnosis accompanied by the necessary measures for the maintenance of health, and those responsible for such service constantly require immediately available reference material. This book is intended to supply that need.

Handbook Of Emergency Toxicology—*A Guide for the Identification, Diagnosis and Treatment of Poisoning, by Sidney Kaye, M.Sc., Ph.D., State Health Department, Commonwealth of Virginia, 377 pp., Charles C. Thomas—Publisher, Springfield, Second Ed., 1961, cloth,* **$10.75.**

This latest edition includes the most up-to-date information available on poisons. The sections on alcohol, carbon monoxide, and barbiturates have been rewritten and enlarged. The section on poisonous plants has been greatly expanded as well as the section on common trade names with their ingredients. New tranquilizers, antihistamines, and hypnotics recently developed are included. Tests have been completely revised—others partially revised.

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CARBOPOL COSMETICS

(*Continued from page 811*)

Procedure: Form the mineral oil-in-water emulsion and add the iron oxide and zinc oxide as a dry blend to the emulsion. The emulsion had a final viscosity of 11,000 cps (Brookfield, 20 rpm) and a *p*H of 9.4. A film of the formulation spread well on the skin. The dried film was nondispersing and nonrewetting but was easily removed with soap and water. If a thinner yet still stable product is desired, substitute Carbopol 941 for the 934 in the foregoing recipe.

Note: It is very important to adjust the *p*H to a *minimum* of 8.3 *before* pigment addition to prevent pigment-Carbopol 934 interaction and flocculation.

PHARMACIST FIGHTS BACK

(*Continued from page 778*)

opened his files only to find that the salesman proceeded to sell the physicians directly for dispensing purposes. Needless to say, the situation exploded.

Companies that overload the pharmacist with a variety of dosage forms and combination products, yet fail to move these products off the shelf, have long been a source of irritation to the pharmacist. Similarly, manufacturers with poor return goods policies have caused him to be over-cautious in stocking their full line and as a consequence have weakened their distribution.

Many situations are nothing more than oversights of the manufacturer. The pharmacist is constantly harassed by failure to be notified of changes in product taste, form, or price. Too often, he is placed in an embarrassing position when he finds the physician to be well informed of such changes. Sometimes, lack of notification is intentional, in price declines for instance, to prevent the issuing of credit for shelf stock. In either event, such maneuvers are going less and less unchallenged.

The list of complaints is endless. Equally as unlimited are the ways in which pharmacists are making the dissentions felt.

As individuals, pharmacists are influencing the movement of prescription as well as nonprescription items of individual companies. Their relationship with local physicians increases their span of influence. When a pharmacist hesitates to carry a product in stock, a prescription for the product may often result in a phone call to the physician asking him to use a similar product if the situation warrants it. Despite the thousands of dollars invested in medical promotion, the pharmacist is in a position to kill physician usage at the retail level and actually recommend a competitive product.

Certain high prescription pharmacies enjoy the reputation of being medical information centers for the community physician, with their pharmacists often assuming the role of therapeutic consultants. Under

such circumstances it is not uncommon for the physician to seek their advice concerning the use of certain drug products. Here again, company favorism or lack of favorism can be displayed by the pharmacist, all other things being equal. Assuming he is in a position to recommend any one of several drugs, the pharmacist tends to support the companies who support him. Again, the pharmacist emerges as an important influence on the physician.

The filling of generic prescriptions gives the pharmacist additional latitude in fighting back. When a doctor writes generically, the pharmacist is in a position to use any reliable brand available. His selection is often influenced by his experience with the companies in question.

The drug counter represents still another vehicle for his revolution. Frequently, the pharmacist is called upon by his customers to make a product recommendation. In such circumstances, mass advertising has only influenced the customer to desire a *type* of product, and the brand preference is actually determined by the pharmacist a few seconds before the sale. Other times the pharmacist recommends a product unsolicited. In each case, pharmacists are increasingly rallying behind the companies who support them. Manufacturer support, or lack of support, even carries over to the selective use of point of purchase material of certain manufacturers.

Besides the individual efforts of pharmacists, their organizations have brought pressures to bear. Historically, the American Pharmaceutical Association has asked that distribution of drug products be limited to registered pharmacists. The American College of Apothecaries, an organization of high prescription pharmacists, has been most active in its efforts to influence certain manufacturer's policies. In its membership newsletter, and through "The Voice of the Pharmacist" (published under the A. C. A.'s auspices), the group has found an effective vehicle for making known its dissentions. More recently, an article in the "Voice" was directly attributable to stopping a manufacturer selling to a mail order prescription association.

With the tide of this new trend has come a discernable tractability by manufacturers. Return goods policies are softening. More and more manufacturers are establishing the position of trade relations director to help support their pharmacy franchise. Still other companies are initiating consulting committees of retail pharmacists to help guide their retail policies. Manufacturers are reaffirming the pharmacist's role in drug distribution and supporting his role as a consultant to the physician. At every turn those companies which limit themselves to drug store distribution are increasing their public relations efforts to keep this thought utmost in the pharmacist's mind. Typical of supportive efforts is E. R. Squibb's "Fight Back" campaign. Their newest program is the biggest

(*Continued on page 827*)

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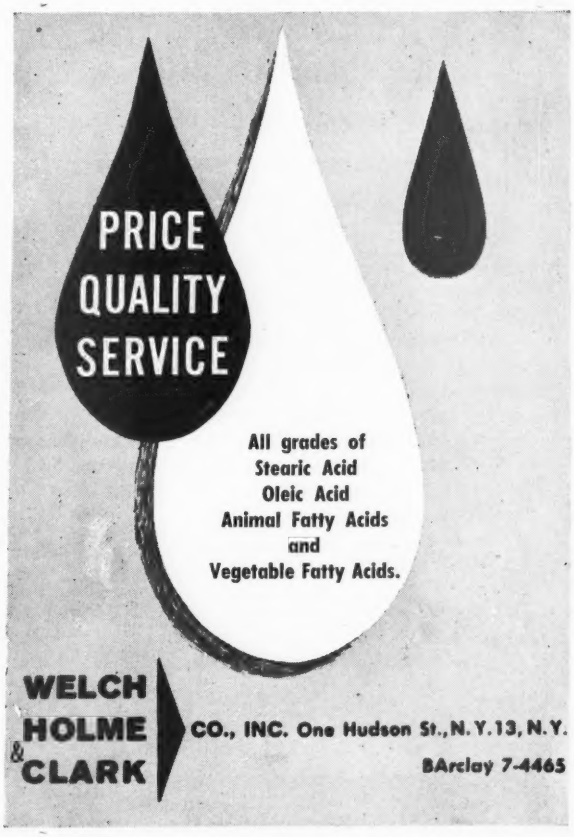

TRADE LITERATURE

Jar Mill. Abbe Engineering Company, 625 Graybar Building, New York City 17—16 pg. catalog (#83) covers 1961 line of eight jar mill styles for batch production, pilot plant production, and analytical and experimental testing.

N-Butyl Alcohol. Technical Literature Dept. U. S. Industrial Chemicals Company, 99 Park Avenue, N. Y. C. 17—12-pg. bulletin contains U.S.I. specifications for n-butyl alcohol, in addition to resin solubilities and chemical references. Physical properties, and a list of binary and ternary azeotropes is included.

Air Operators. Hills-McCanna Company, 400 Maple Avenue, Carpentersville, Ill.—6-pg. bulletin (#134-A) provides data on eight types of air operators for Hills-McCanna diaphragm valves. Sectional drawings, descriptive information, tables of air actuator pressures, for various line pressures, dimensional data, and ordering instructions are given.

Feeder. Sterwin Chemicals Inc., 1450 Broadway, New York City 18—4-pg., illus. brochure on the model 50-A3 feeder describes the method of operation, and includes complete specifications.

Laboratory Items. Scientific Glass Apparatus Company, Inc., Bloomfield, N. J.—20-pg. magazine, "What's New for the Laboratory" (#43), illustrates and describes the Beckman Hygromite for measuring trace quantities of moisture in gases, new line of DK Spectrophotometers for analysis in the ultraviolet, visible, near infrared and far ultraviolet, and the new Beckman gas chromatograph temperature programmer called Thermotrac, among other items.

Test Instruments. Gardner Laboratory, Inc., Box 5728, Bethesda 14, Md.—27-pg. bulletin lists optical and physical test instruments and announces the publication of the company's new general catalog (#62).

Stainless Multi-Flo Homogenizers. Creamery Package Manufacturing Company, 1243 West Washington Blvd., Chicago 7, Ill.—6-pg. bulletin (N-1-100) describes homogenizers designed to save space and clean-up time. Three types of valves are available: the bell-flow single service valve, the turbo-flow valve, and the shear-flow homogenizing valve. Photographs and diagrams are included.

Product Catalog. Kay-Fries Chemicals, Inc., 180 Madison Avenue, New York City 16—catalog of the company's products contains information regarding properties, specifications and uses for its regular commercial products.

Thermotrac Temperature Programmer. Technical Information Department, Beckman Scientific and Process Instruments Division, Fullerton, Calif.—bulletin (#792) describes the Thermotrac, designed for linear or nonlinear temperature programming of the GC-2, the GC-2A, or any other laboratory gas chromatograph.

Automatic Flow Responsive Equipment. B.I.F. Industries, P.O. Box 276, Providence 1, R. I.—4-pg. 2-color bulletin includes description, illustrations, charts and dimensions of the Proportioneers Treet-O-Control Model 1410-1, a method of combining fluid meters and proportioning pumps so that a given process will be continuous, with all units synchronized and controlled from a single source.

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Laboratory Glassware. Kimble Glass Company, Toledo 1, Ohio—294-pg. book lists over 3,000 laboratory glassware items including erlenmeyer flasks, petri dishes and beakers, Ray-Sorb low-actinic ware, replacement ware, teflon items, stoppers, separatory funnels and a line of plastic accessories.

Chemicals and Aromatics. A. Boake, Roberts and Company, Ltd., Carpenters Road, London, England—catalog of aromatic and fine chemicals has listings for aromatic chemicals, pure perfumery chemicals, standard aromatics, cosmetics raw materials and miscellaneous fine chemicals. It outlines terms and conditions of sale, and export requirements.

Conveyors. U. S. Bottlers Machinery Company, 4013 North Rockwell Street, Chicago 18, Ill.—bulletin describes company's line of conveyor systems, drive units and components.

Viscometers. Cannon Instrument Company, State College, Penna.—bulletin #20 illustrates company's line of viscometers for use in laboratories.

Dry Ingredients Feeder. The Creamery Package Manufacturing Company, 1243 West Washington Boulevard, Chicago 7, Ill.—2-pg. bulletin describes the CP Dry Ingredients Feeder for continuous metering of dry products into fluid products at a predetermined rate.

Calcium and Zinc Stearates. Heyden Newport Chemical Corporation, 342 Madison Avenue, New York City 17—brochure discusses specific industry applications for micronized calcium and zinc stearates, that are uniform, disperse more easily in slurries, and stay in suspension longer.

Ball Valves. Hills-McCanna Company, Carpentersville, Ill.—catalog (1200A) describes manually operated and pneumatically operated ball valves, ranging in size from ¼ inch to 12 inches, with screwed, socket weld, and flanged end models.

Automatic Electronic Balances. Mettler Instrument Corporation, Princeton, N. J.—literature describes low weight range automatic electronic balances for check weighing, sorting, statistical evaluation, and production control.

Magnetic Filtration and Wet Separation. Eriez Manufacturing Company, Erie 6, Penna.—bulletin describes the use of powerful, permanent magnetic devices for continuous protection of liquid lines and processing equipment against iron contamination. Contains pictures and drawings of ferrous traps, slurry drums and ferrous cleaners.

Batch Ovens. Blue M Electric Company, 138th and Chatham Street, Blue Island, Ill.—illus. 4-pg. bulletin (1961) contains specifications and applications for company's mechanical convection horizontal airflow ovens with saturable power reactors and hydraulic thermostatic bellows.

Automatic Data Loggers. The Bristol Company, Waterbury 20, Conn.—bulletin (D 401), describing economy and application flexibility of Data-Master automatic data loggers, contains photographs and a discussion of operating system installations.

Denatured Alcohol Formulas. Commercial Solvent Corporation, 260 Madison Avenue, New York City 16—revised chart shows approved uses of each specially denatured alcohol formula, based on alcohol regulations now in effect.

Air Pumps. Leiman Brothers, Inc., 102 Christie Street, Newark 5, N. J.—16-pg. illus. booklet (61261) describes firm's rotary vacuum pumps, pressure pumps, gas boosters and accessories.

PWA Report. Pharmaceutical Wholesalers Association, 551 Fifth Avenue, New York City 17—42-pg. *Report of the Year* outlines purpose, policy and services of the association.

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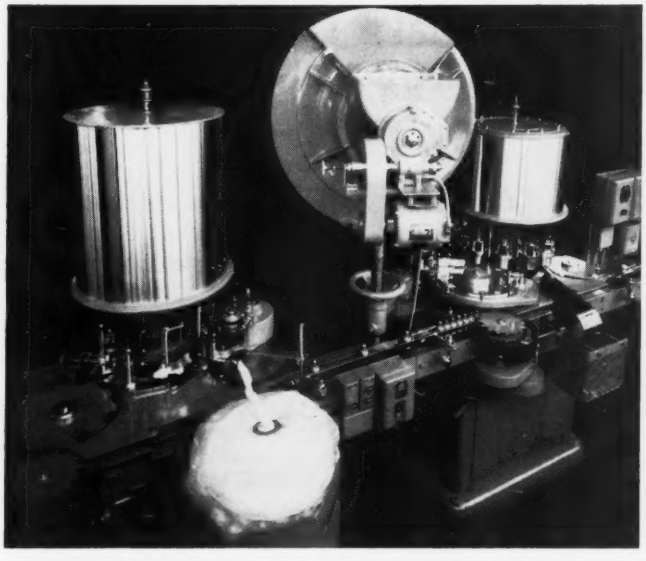

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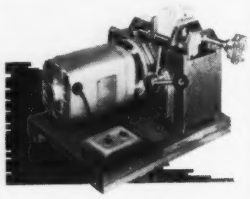

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PHARMACIST FIGHTS BACK

(*Continued from page 823*)

overall promotional effort on vitamins in the company's 103-year history and it is designed to help the pharmacist keep the vitamin business in his drugstore.

Often it becomes economically necessary for companies to bypass the pharmacist and it is not the purpose of this article to judge such marketing tactics. Many companies have stepped on the toes of pharmacists and have been the better for it. Many have been unhappy with the pharmacist's performance and it is often the pharmacist who has created his own misfortunes. Moreover, the pharmacist's boycott of certain manufacturers will actually force manufacturers into nondrug outlets and ultimately hurt the pharmacist in the long run.

Indications are that the pharmacist's inclination to fight back will continue to gain momentum. Both as an individual and as a group member, the pharmacist will continue to rebel in actions as well as words.

Future marketing trends will increase his ability to make felt his dissentions. Any increase in the volume of generic prescriptions will give the pharmacist greater power to support the companies he believes in. Moreover, many marketers predict the retail pharmacy will eventually gravitate into two types of dominant institutions—large professional prescription stores and large mass merchandising stores—and such a transformation will undoubtedly increase the weight of influence of each individual pharmacist.

COUGH SYRUP CARTONS

(*Continued from page 729*)

induce impulsive coughing rather than buying. In most cases the message carrying the indications and other copy conflicts with the product name, making the latter more difficult to read. And to be consistent, even though the box might be discarded after purchase, the label is generally as atrocious as its container. Only one of the packages reflects moderately good contemporary treatment.

The tasteless treatment unfortunately suggests a tasteless product. They are all unimaginative and dreary. In many instances the product names could be interchanged without affecting the designs.

Surely, it must be possible to design a cough syrup package which can convey a feeling of security to its purchaser in addition to the required legibility from a distance. Projecting the character of the company as well as the "promise of the product," should also be an intrinsic part of the design.

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